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# ***JPRS Report***

# **Environmental Issues**

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# Environmental Issues

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24 January 1992

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### **Linkage Between Environment, Development Urged for UNCED**

*OW2111010191 Beijing XINHUA in English 2309 GMT 20 Nov 91*

[Text] United Nations, November 20 (XINHUA)—The relationship between environment issues and development needs has to be "further rationalized," Jin Yongjian, China's deputy permanent representative to the UN, said Tuesday.

Speaking at the second committee on the preparation for UN Conference on Environment and Development, Ambassador Jin said that what the conference should consider are not only issues on environment but also the related issues of development.

At the third session of the preparatory committee, the Secretariat submitted many measures and proposals for addressing the various issues in the field of environment and progress has been made in the deliberation of these issues.

However, Jin said, no detailed documentation has been proposed so far on such outstanding issues in the field of development as external debt, and unfavorable terms of international trade, nor was the preparatory committee able to go into detailed and in-depth discussion on these issues.

The disparity that stood out at that session should be corrected in the next stage of preparations, Jin said.

He also pointed out that environmental issues have to be closely linked to such cross-sectoral issues as financial resources and transfer of technology.

These issues have aroused serious concern to many delegates, he said.

### **Desertification, Drought Assistance Sought for Developing Countries**

*OW2111012291 Beijing XINHUA in English 2219 GMT 20 Nov 91*

[Text] United Nations, November 20 (XINHUA)—Greater efforts still should be made in halting the worsening spread of desertification though some positive results have been made, said Wu Hailong, a Chinese delegate at a UN meeting.

Speaking at today's meeting of the second committee of the 46th session of the UN General Assembly, Wu said that the fundamental way out of desertification is to create an international economic environment that is conducive to the development of developing countries, so that various countries can ensure economic growth, eradicate widespread poverty as well as ease the pressure on land resources and ecological environment in light of their own specific national conditions.

'Desertification and its closely related problem of drought have remained serious issues facing many countries, especially the developing countries, and causing great concern on the part of the international community,' said the Chinese delegate.

Since the UN conference specially devoted to desertification, held in 1977 and the 'plan of action to combat desertification' was adopted, and thanks to the assistance of the international community, Wu said, the developing countries have achieved some positive results in halting the worsening spread of desertification, but problems of desertification still persists.

UN statistics show that the number of areas and people affected by desertification, instead of being reduced, has been increased.

Wu said that it is necessary to carry out in-depth and comprehensive research on 'desertification and formulate more effective policy measures, so as to obtain better results.'

He said desertification can not be separated from those involving socioeconomic, population and ecological problems, thus it can not be solved as an ecological problem alone.

Mentioning particularly the case of many developing countries that are victims of desertification, he said that their economic underdevelopment and poverty have compelled them to depend on excessive acquisitions from nature at the expense of serious damage to their ecological environment.

The Chinese delegate ended his speech by calling for international assistance to support developing countries in their struggle against desertification and drought.

The developing countries deserve more assistance with preferential terms from the international community, he said.

### **Norway Offers Strategies for Binding International Climate Agreement**

*92P20051A Oslo AFTENPOSTEN in Norwegian 12 Nov 91 p 2*

[Guest commentary by Foreign Minister Thorvald Stoltenberg: "Binding Climate Agreement"]

[Text] It seems that the fear of binding international cooperation is receding. The thaw in relations between the Soviet Union and the United States has contributed to this. Also contributing to the increased interest in binding international cooperation is the conviction that the most serious problems the world is now facing can only be met by a joint effort.

For the next decades the handling of cross-border environmental problems will probably be one of the toughest tasks challenging this desire for binding cooperation. The United Nations has set for itself the ambitious goal of signing a binding international agreement on limiting emission of gases threatening the earth's climate at the Conference on Environment and Development [OECD] in Rio de Janeiro in June of 1992. Negotiations on such an agreement offer known challenges with regard to the balance between national special interests and the need to achieve a common global goal. Norway's goal, like that of

most other OECD countries, is to stabilize emissions of the most important greenhouse gas—carbon dioxide—at 1989 levels before the year 2000.

An agreement on the reduction of greenhouse gas emissions can only be effective if all regions of the world find it useful to join in such cooperation. Efforts within the industrialized countries alone will not be enough. The problem of sharing the burden among the industrialized nations and between the industrialized nations and the developing countries must be resolved if cooperation is to succeed.

The industrialized nations are responsible for three-fourths of the emissions of carbon dioxide. Because of differences in industry and transport structures, however, emissions are unevenly distributed, likewise the possibilities for reducing emissions.

Japan emits a relatively small amount of greenhouse gases per unit of production, while a country such as the United States has higher emissions. Norway is one of the countries which will suffer high costs to achieve the emissions limits. This is mainly due to the fact that all our electricity production comes from water power. We have, therefore, no benefit to reap by, for example, converting from coal to less polluting energy sources, such as is the case in most industrialized nations. Furthermore, the interdepartmental climate report points out that international emissions reduction goals in the long run may drive oil and gas export prices in a negative direction.

For the developing nations it is clearly a dilemma that the need for growth is strong, while investment funds do not cover cleanup efforts and environmental protection.

It is, therefore, improbable that the effort to get developing countries to participate in a dynamic cooperation on these issues will be successful without the resources being made available to them. One can hardly expect poor nations to implement measures which have global effects, but where the overall costs cause the budgets in these countries to suffer.

A portion of the emissions reduction efforts—such as energy conservation and the development of new technology—can be economically profitable in and of themselves, but we cannot close our eyes to the fact that it will cost considerable amounts to reduce the threat to the earth's climate.

Thus, a precondition for success in this effort will be that we find measures which are cost effective. There will be great profits from the work to reduce emissions if the combined resources can be applied where one has the greatest reduction in emissions per krone invested. In many cases this will be in developing countries and in the East European countries.

Norway argues for a three-pronged strategy in the international emissions reduction negotiations:

We want internationally coordinated and harmonious environmental taxes. This is necessary to achieve a change in production and transport toward more environmentally

safe systems and to inhibit distorted trade and competitive practices. Moreover, all nations should establish national administrative tools in the form of national plans of action for emissions limitations.

In addition to these two necessary strategies, Norway has put forth a recommendation which proposes that countries should be able to fulfill their national emissions goals through international measures. The basis for this recommendation are the above-mentioned estimate of cost effectiveness, distribution of burden, and the transfer of resources to developing nations.

We suggest that an institution be established, a clearing-house, where countries can report on proposed projects for reducing greenhouse gas emissions which the country itself is not able to finance. Let us assume that one country which has committed itself to a certain reduction in emissions is trying to achieve that goal by the cheapest possible method. By inquiring with that institution the country will get an overview of current projects whose costs can be compared with the costs of reducing emissions in their own country. If a project in another country yields greater reductions in emissions per krone, the granting country will be able to finance this project and receive credit on its own "climate balance sheet."

In this way many things have been achieved. Emissions of greenhouse gases have been reduced, the most cost-effective project has been set in motion, and resources have been given to the country that will carry out the project, be it Brazil or Poland, for example.

The Norwegian recommendations have been met with interest, both from major industrialized nations and from developing countries. The latter see opportunity in such a proposal to mobilize resources and transfer technology for environment and development, coming in addition to the traditional developmental aid. It is our hope that the proposal will be a constructive contribution to the cooperation package which must be set in motion if we are to succeed in meeting the threat to our environment which we ourselves have caused.

#### **Treaty Organization To Endorse Ban on Herring, Bluefin Tuna Trade**

*OW1611095191 Tokyo KYODO in English 0911 GMT 16 Nov 91*

[Text] Tokyo, Nov. 16 KYODO—Members of an international treaty for protection of endangered species are calling for a ban on trade in such popular species as herring and bluefin tuna, government sources reported Saturday.

The sources said the proposals were submitted to the Secretariat of the Convention on International Trade in Endangered Species of wild fauna and flora (CITES) in preparation for its conference to be held in Kyoto next March.

Botswana and three other countries in southern Africa have sought a ban on trade in herring, claiming the fish is in danger of extinction because of rapacious hauls in the Atlantic Ocean, the sources said.

Herring catches in the Atlantic, mainly by the Scandinavian countries and Canada, totaled 1.6 million tons in 1989, with Japan's imports amounting to 30,000 tons, they said.

A ban on herring catches on the high seas will deal a heavy blow to Japan, the sources said.

They said the four African nations at the same time called for resumption of trade in ivory, banned by the convention in 1989.

Sweden proposed a ban on trade in bluefin tuna caught in the Western Atlantic ocean, the sources said.

#### **Atlantic Tuna Group Agrees To Cut Bluefin Allowance**

*OW1911114991 Tokyo KYODO in English 1108 GMT  
19 Nov 91*

[Text] Tokyo, Nov. 19 KYODO—An international organization monitoring tuna fishing in the Atlantic Ocean has agreed to reduce its members' fishing allowance of bluefin tuna by 10 percent for two years followed by a further 25 percent cut for another two years, Japan's Fisheries Agency said Tuesday.

The International Commission for the Conservation of Atlantic Tunas (ICCAT) agreed in Madrid to set its total allowance at 4,788 tons for 1992 and 1993 combined, with a limit of 2,660 tons in 1992. The total for 1994 and 1995 is 3,990 tons, with a ceiling for the first year at 2,261 tons.

Japan's allowance was set at 700 tons in 1992, the same as for 1991, 560 tons in 1993, 595 tons in 1994, and 455 tons in 1995.

But the commission also agreed that unless there is a warning from its ad hoc committee, the allowance will later be returned to its current level.

The United States earlier considered but decided against calling for a ban on bluefin fishing in the Atlantic at the Washington Convention meeting in Kyoto next March. The convention was signed in 1973 to protect endangered species of wild fauna and flora.

Sweden has urged a total ban on bluefin fishing. Sweden is not a member of the ICCAT.

#### **Conference Views Radioactivity Levels in Arctic Sea Areas**

*PM2911170891 Oslo AFTENPOSTEN in Norwegian  
22 Nov 91 p 40*

[Erik Veigard report: "High Levels of Radiation in the Arctic"]

[Text] Tromso—Radioactivity in the Arctic sea areas is four times higher than the quantity of radioactive fallout would suggest. At present researchers have no explanation, Danish researcher Asker Aarkrog from Riso Research Center told an international conference on radiation protection in Tromso yesterday.

Global measurements of radioactive fallout over the last decades show that the Arctic sea areas received only half as much fallout as large areas of the rest of the world.

Nevertheless, today's measurements indicate that their level of radiation is twice as high as that of other sea areas. In other words, radioactivity is four times higher than expected. The fallout came chiefly from nuclear tests in the atmosphere in the fifties and sixties.

The figures come from measurements carried out during a number of countries' expeditions to the polar basin and to the rest of the Arctic sea area. The figures show that Arctic seas have a radiation level of 4.6 becquerel per cubic meter of water. In temperate waters the corresponding figure is 2.9.

"The higher figures do not give rise to any health worries. Neither fish nor other marine resources have anything close to becquerel readings that would give cause for concern. The reason why I have raised the issue is that we cannot find any explanation for the high readings. At present they are an unsolved mystery," Asker Aarkrog said.

Aarkrog ruled out the possibility that we are dealing with natural background radiation, because the isotopes that have been registered are the result of human nuclear activity.

"I have asked myself whether the enormous explosions in the atmosphere over Novaya Zemlya in 1961 and 1962 could form part of the explanation, and that some other part could be the washout of radioactivity from the rivers of Siberia. For a couple of decades after the war the Russians discharged large amounts of highly radioactive waste directly into their rivers," Aarkrog said. He is expecting to be able to continue his research in the region, in part through visits to Siberia.

#### **Seminar on Sea Level Changes Opens in Tokyo**

*OW2611023791 Tokyo KYODO in English 0214 GMT  
26 Nov 91*

[Text] Tokyo, Nov. 26 KYODO—A two-day international seminar on rising sea levels caused by global warming started Tuesday at the Maritime Safety Agency in Tokyo, with experts from 11 countries attending.

The seminar aims to strengthen monitoring of sea levels in the Asian and Oceanian region, organizers said.

The world's average sea level has risen by 10 centimeters in the past 100 years, a United Nations report shows. The report projects it will rise by another 44 centimeters by the year 2070 from the present.

Because of the rising levels, many islands and low-lying coastal land are expected to sink in the future.

While Europe and North America have been observing sea levels with satellites, many Asian nations have yet to establish observation systems to monitor levels, the organizers said.

Participants to the seminar include experts from Australia, Indonesia, China, South Korea, and international organizations, they said.

The two-day meeting is scheduled to discuss further international cooperation of monitoring activities.



## REGIONAL AFFAIRS

**Rats Causing Extensive Annual Grain Losses in Southern Africa***MB0811095291 Johannesburg SAPA in English  
2341 GMT 7 Nov 91*

[Text] Harare, 7 November (SAPA)—Rats are destroying 500,000 tonnes of crops annually in southern Africa, according to the Southern African Development Coordination Conference (SADCC).

The rodent plague has sparked off a seminar by 10 southern African countries starting on Monday, to thrash out ways to control the ravenous animals, reports Zimbabwe's ZIANA national news agency.

In Zimbabwe alone, rats destroy about 650,000 tons of grain annually, according to statistics released by the SADCC.

In view of an estimated cereal crop shortage of almost three million tons in the southern Africa region this year, every effort should be made to avoid further losses which would additionally increase the already considerable food deficit in the region, the SADCC said in a statement.

**Mozambique President Addresses Maputo Environmental Meeting***MB2611061191 Maputo Radio Mozambique Network  
in Portuguese 1730 GMT 25 Nov 91*

[Text] In Maputo today, President of the Republic Joaquim Chissano called on people who directly or indirectly are connected with environmental problems to educate people on the correct utilization of land, particularly their habitat [preceding word in English].

The Mozambican head of state was speaking at the opening of Africa's International Conference on Environment, Technology, and Sustainable Growth. Chissano said on examining environmental problems in Mozambique, we must take into account the impact of environmental degradation from sea to land and from land to sea.

The president of the Republic hailed the initiative to hold the environmental meeting, particularly during this period in the fight to protect the environment.

President Chissano said there is a need to promote agricultural methods that will increase biomass growth on the continent.

[Begin Chissano recording] Taking into account that the environment is an extremely complex system with links beyond national borders, it is the duty of all of mankind, particularly Africans, to do our utmost to ensure that the world's industrial growth and the environment operate in harmony and not to the detriment of mankind.

This means that the world's industrial growth must be ecologically sustainable. It is, therefore, with satisfaction that we observe the world's major concern over the danger facing the environment and the efforts undertaken by mankind to reduce and eliminate the negative ecological effects resulting from its growth.

While industrialized countries are facing the problems of the so-called greenhouse effect, the industrially poor countries of the South are facing the problems of erosion as well.

Statistics show that more than 90 percent of the energy used in the countries of the South derive from firewood. The indiscriminate felling of trees to produce firewood and coal, the burnings of thousands of hectares of bush and forests for agricultural production or animal hunting, and bad land utilization lead to serious environmental problems.

The environmental problems facing Africa result from the serious level of poverty facing our countries. Accordingly, our scientists, engineers, economists and other technicians have a major challenge ahead of them. They must promote on the African continent the correct utilization of natural resources for sustainable growth. [end recording]

**Maputo Environment Conference Disagrees Over Final Declaration***MB2911182091 Dakar PANA in English 1657 GMT  
29 Nov 91*

[Text] Maputo, Nov. 29 (AIM/PANA)—A five-day international conference in Maputo on the environment, technology and sustainable development ended on Friday amidst disagreement over a final declaration.

The two-page draft presented by the conference organizers was regarded as inadequate by many participants who noted that, while the draft claimed that poverty is the root cause of environmental degradation, it did not discuss why Africa was poor.

They pointed to the unjust North-South economic relations and to the wars crippling several African countries as key factors behind the continent's poverty which were not mentioned in the draft.

The declaration said that the use of wood as fuel was a basic cause of deforestation. But Kenyan academic D. Walubengo challenged the assertion saying that much more tree cover was lost through the planting of cash crops and through logging activities.

We have to grow more and more cash crops for export because of the terms of trade demanded by the developed countries of the North, he pointed out.

Mustapha Nasseir, a representative of the UN Food and Agriculture Organization (FAO), criticized the document for its failure to insist that environmental impact assessments should be carried out before the implementation of any development project.

The draft stressed the use of science and technology to reduce soil erosion, grow more biomass, [produce] and use bioenergy more efficiently, develop no-waste or low-waste process technologies, and manage biowastes in such a manner as to render them harmless while at the same time producing energy and recycled material.

It was also criticized for envisaging implementation of these worthy measures as falling largely on the shoulders of

governments. Several participants urged greater emphasis on communities and individuals.

The rapporteur of the conference, Prof U. Aswathanarayana, of India, promised that the points made in debates on the document will be included in a redrafted version which will be circulated to participants later.

### **SADCC Meeting Focuses on Depletion of Woodlands**

*MB2911164491 London BBC World Service in English  
1515 GMT 29 Nov 91*

[From the "Focus on Africa" program]

[Text] The nine [as heard] member states of the southern African regional organization, SADCC [Southern African Development Coordination Conference], have been meeting this week in Blantyre, Malawi, to discuss a crisis hitting the whole region—the depletion of woodlands for firewood and charcoal. Not only are large areas running out of the commodity, but the degradation of forest land is causing severe ecological problems such as erosion, and wildlife depletion. And Malawi is itself particularly hard hit. Pressure on land is already high and is being added to by the hundreds of thousands of refugees from the civil war in neighboring Mozambique. From Blantyre, Mike Kamuiando telexed this report:

[Announcer] At the crack of dawn every morning on the old Chileka road outside Blantyre the charcoal vendors on their bicycles make their way toward the residential areas of the city. These charcoal vendors are breaking the law, but they carry on their work regardless.

Meanwhile, in the city of Lilongwe a similar scenario is unfolding. Charcoal vendors set off from as far away as the town of Dedza, 60 km away, with piles of wood strapped to their bicycles.

This is the backdrop to the SADCC workshop in Blantyre. Malawi and other countries in the region are looking for ways to balance the demand of urban population for firewood with the need to prevent environmental degradation arising from the destruction of indigenous forests.

Mr. Louis Mahango of the Malawian Government's energy research unit, says that Blantyre's population is causing a serious depletion of Malawi's forests. Although some headway has been made since the introduction of a new ceramic stove, which reduces charcoal consumption by 50 percent, many people are proving reluctant to use it. Mr. Mahango warned that just planting more trees is not a solution on its own.

### **Southern Africa To Press for Resumption of Ivory Trade**

*MB0112151691 Johannesburg Radio RSA in English  
1100 GMT 1 Dec 91*

[Text] South African wildlife authorities and their counterparts in Zambia, Botswana, and Namibia are going to press for the resumption of the ivory trade when the UN Convention on Trade in Endangered Species meets in Japan in March next year.

South Africa already has its maximum sustainable elephant population at about 8,500, as well as 30 percent of all black rhino in Africa, and 90 percent of the white rhino. The country's parks board says it has lost about 2.5 million dollars in revenue a year since the five years ban on the ivory trade was imposed in 1989.

Officials say that the key to conservation is sustainable utilization, and that game parks need the money raised from ivory sales to carry out their conservation programs.

## **MAURITIUS**

### **Government Plans New Laws for Management of Ecosystem**

*92WN0105A Port Louis LE MAURICIEN in French  
7 Oct 91 p 4*

[Article by Raj Gowrea: "Minister Swaley Kasenally Announced Measures: Focus on Rational Management of the Mauritian Ecosystem"]

[Text] War against abusive pesticide use; protection of endangered species. A series of measures will be taken to achieve a more rational management of the Mauritian ecosystem through the adoption of new laws; the objective is to enable Mauritius to cope with the threatening deterioration of its environment.

This is what Dr. Swaley Kasenally, minister of environment and national development, indicated on Friday, at the headquarters of the Society for the Prevention of Cruelty to Animals, during an expose entitled: "Environment and Biological Diversity" that essentially focused on an assessment of the state of the environment and on the present government's future orientation as far as the measures required are concerned.

The measures of all kinds taken to counter the threats of a deficit in the natural and biological resources of our environment have enabled Mauritius to be on the defensive. "Of course, we were misunderstood; we had no easy solutions to such basic problems, but only hard choices to make," Minister Kasenally conceded before dwelling on a series of measures framed in a comprehensive program designed to improve the management of the Mauritian ecosystem.

Protection of animal species is dependent on their habitats. Simultaneously with the government's efforts to create marine and natural parks, new laws will be adopted to protect forested areas, rivers, coral reefs, and other wetlands, "to provide greater security for animals and their natural habitats." As far as "Crown Land" management is concerned, the minister will recommend preliminary studies of its impact on the environment, so as to make sure that any project initiated will not adversely affect the environment.

Besides, one of the priorities of the "National Physical Development Plan" will revolve on the concept of "planning restrictions on certain types of land," the minister emphasized, and he then remarked: "These protected areas will only succeed in realising their conservation

objectives only to the extent that the areas themselves are effectively managed, and that there is a wide participation of local inhabitants living in the vicinity."

Under the program for the preservation of rare animals and species, the efforts undertaken to save the pool pigeons is salutary and, simultaneously, a whole technology will be implemented to prevent the extinction of another species commonly called the "Mauritian Parakeet." Thus, Minister Kasenally pleaded for a consolidation of government institutions in charge of fauna, flora, and endangered species conservation programs.

The abusive and unchecked use of pesticides is a scourge for our marine resources and for insect survival. "Besides contaminating our water and land resources, they destroy indiscriminately useful insects as well as pests that destroy our crops. We rely heavily on imported fruits, because useful insects such as bees or butterflies that pollinate fruit trees are killed by pesticides," the minister emphasized before announcing the creation of a research unit, as part of the Environment Investment Program, in order to define the problems related to pesticide use.

Minister Kasenally also considered the measures initiated to solve marine pollution problems in our coastal areas. Rational waste management, the creation of a body to manage waste water, pesticide control through a Hazardous Control Board, and the institution of an Environment Impact Assessment "will, in the years to come, reduce the impact of chemical pollution on animals," Minister Kasenally maintained.

## MOZAMBIQUE

### Manica Governor on Importance of Reforestation

92WN0112B Maputo NOTICIAS in Portuguese  
19 Oct 91 p 3

[Excerpt] Artur Canana, governor of Manica Province, said there is an imperative and urgent need to replace various species of plants that have been destroyed over the years. Artur Canana was speaking last Wednesday in Chimoio City, at a ceremony celebrating 16 October, World Food Day, and the United Nations Fund for Agriculture and Nutrition.

Addressing members of the provincial government and representatives of various international agencies based in that part of the country, Artur Canana spoke of the importance of trees in the context of the multifaceted development of the country.

On that occasion, the governor of Manica Province stressed that, given the important role that trees play in the development of the country, men must be the principal promoters of this development.

"Trees are as important as corn. The tree that is planted in the ground today will take a long time to grow and give back something, but when it grows it does not stop, if we know how to care for it," Artur Canana said.

At least 170 trees, including palm trees, leucaenas, and acacias, were planted Wednesday morning in the courtyard of the residence of the governor of Manica. Similar ceremonies were held at several schools and in residential neighborhoods on the outskirts of Chimoio City.

More than 50,000 trees were planted in these locations by students and residents who were enlisted, respectively, by their teachers and secretaries of the dynamization groups.

In a tour of the suburban districts of the Manica Province capital, our reporter observed at first hand the massive and voluntary involvement of the people in planting trees, and the effort is considered singular in the province this year, thanks to the education campaign conducted by the Provincial Forest and Wildlife services regarding the importance of preserving the environment.

In the early hours of 16 October, brigades from these services went to Manica and Gondola districts, where they proceeded to distribute a quantity of saplings to the schools and local communal districts. They also explained how the trees should be planted, as well as what conditions would ensure that the trees would grow.

Early in the morning, a crowd of people, primarily children, gathered in front of the Provincial Directorate of Agriculture in Chimoio City. They were eager to take at least one plant home with them. It is noted that about 500 people gathered in front of the Directorate and each of them got a plant.

We note that the local government authorities decreed that leeway should be granted to employees in the time they reported for work on Wednesday morning, to permit broad involvement in this event. [passage omitted]

## SOUTH AFRICA

### Weekly Warns of Precariousness of Water Resources

92WN0134B Pretoria DIE PATRIOT in English  
4 Oct 91 p II

[Text] News from Bloemfontein about the people of Hennenman in the OFS [Orange Free State] being subjected to "harrassment" by the South African Police because they were drawing water from surrounding farms after their own township water had been cut off, emphasises the role water plays in the survival of present-day South Africa, and the dangers for future generations in an increasingly crowded country.

Although some South African farms are almost as big as Japan, for example, the role which water conservation plays in our agricultural productivity is sometimes forgotten. Furthermore, the pollution of our existing water sources is becoming a serious problem as more and more squatters move into South Africa's cities, and as the third-world component of our population increases at a daunting rate.

A recent summary by the SA Institute of Race Relations (SAIRR) (July 1991) outlines the problems and backlogs

surrounding the provision of water in South Africa. In 1989 already, a third of Soweto householders reported extensive interruptions of their water supplies and 40 percent reported sewage overflows in their streets which in some cases had continued for months.

Yet to redress the water and sanitation supply back-logs in Black townships would require an investment of nearly R17 billion to the year 2000, according to the report.

#### Boycotts

A side effect of the boycotts of rent and service charges in African townships has been that African local authorities have in some cases been unable to pay for the treatment of sewage, says the SAIRR. In November 1990, it was reported that townships on the Witwatersrand were allowing raw sewage to flow into the Blesbokspruit, the Klip River, the Natalspruit and the Wonderfonteinspruit.

These streams are all tributaries of the Vaal River from which much of the Witwatersrand draws its water.

A virologist at the SA Institute for Medical Research, Professor Margareta Isaacson, said that cholera, typhoid, dysentery and gastro-enteritis could be caused by untreated polluted water.

A spokesman for the Department of Water Affairs said that department officials had been instructed to take legal action against local authorities responsible for polluting streams. However, no prosecutions had been instituted up to June 1991, according to the SAIRR report.

#### Natal

In 1988 already, it was estimated that more than 1 million rural people in coastal and central Natal did not have a reticulated water supply. This area is under the jurisdiction of Umgeni Water, the bulk supplier of water, and Umgeni Water has developed Water Plan 2025 as a basis for attempting to provide an acceptable water supply to all communities, including "informal settlements," says the report.

It is expected that the population in the supply area would increase to more than 15 million by the year 2025, and the plan emphasises sanitation because "water run-off from rapidly growing informal settlements with generally poor sanitation was seen as a serious source of water pollution."

Huge sums are already being spent on the provision of water in Natal. A R100,000 pilot project at Nsongeni on the Umsindusi River involved 44 families who formerly used water directly from the river where faecal pollution levels "at times reached as many as 200 times the international safety limit for bathing."

(The organisers of the canoe marathon along the Umsindusi say that faecal pollution levels in the river are extremely high. In the 1991 race, 90 percent of the competitors had to be treated for gastro-enteritis, some canoeists having to be hospitalised.)

The public relations manager of Umgeni Water, Mr. Derek Hawkins, claimed that much of the pollution originated in "informal settlements" upstream which had no sewage

systems. Millions have been spent in cleaning up other water supply areas under the jurisdiction of Umgeni Water.

#### Authority

There is no single authority responsible for ensuring adequate provision of water and sanitation services for South Africa as a whole, says the SAIRR report. Involved at national level are the Department of Water Affairs, the Department of National Health, the Department of Planning and Provincial Affairs, the Department of Development Aid and the Development Bank of Southern Africa.

At regional level, there are the ten homeland administrations, the 13 water boards and the Regional Services Councils. At local level, there are the urban local authorities and rural institutions. The Department of Water Affairs is only responsible for ensuring that bulk supplies are available, and when townships were being run by White authorities, there was little difficulty in providing water and sewage where necessary.

Now that Black local authorities are constantly subjected to revolutionary intimidation, boycotts and threats against their lives, the whole system has broken down. The Water Boards are restricted to providing bulk water supplies; they cannot supply to communities or individuals.

How the government intends solving this problem remains to be seen. By introducing what was euphemistically termed orderly urbanization, the NP opened up a can of worms. If, as they said, apartheid was expensive, what is it costing us to cope with the chaos we are now experiencing in the "New South Africa."

#### Elephant Poaching in Kruger Park Increasing

92WN0134A Johannesburg THE STAR in English  
11 Oct 91 p 11

[Article by Helen Grange]

[Text] A well-organised poaching drive which is destroying elephants and rhino in the Kruger Park has again highlighted the tragic reality of the ivory and horn trade: that laws alone will never stop it.

Since the end of last year, 29 elephants and one white rhino have been shot and killed in the park by poachers armed mostly with AK-47s, or other automatic rifles.

This marks an increase in animals killed through poaching in preceding years—and reflects the disturbing truth that as long as there is a demand for it, there will be those risking their lives and breaking the most stringent laws to supply the contraband.

Indeed, because of the intensified legal crackdown by the South African Police [SAP] and conservationists on the ivory/horn trade, poachers are orchestrating their activities with increasing Mafia-style skill.

The poachers active in the Kruger Park, according to the park's research and management head, Johan Kloppers, are part of several organised groups working together.

Recently, 26 people, mostly Mozambicans, were arrested. It is believed there are seven groups, consisting of about 40 poachers altogether, operating in the nature reserve.

"Most of the poachers are from Mozambique. They cross the border to poach because in Mozambique's war zone, neither Renamo [Mozambique National Resistance] or Frelimo [Mozambique Liberation Front] will tolerate a guy wandering around alone and armed.

"They come into the park specifically to poach for ivory and rhino horn, hoping to sell it to the highest bidder. The recent spate of poaching has been a concerted effort by large groups," said Mr. Kloppers.

While the elephant population is still high—about 8,000 in the Kruger Park—the loss of 29 elephants in 10 months is causing much consternation among the park's nature officials.

There may be any number of elephants roaming in the reserve riddled with bullets and in pain.

"Poaching will always be with us—as long as there is a demand for the animal commodity. The moratorium on ivory trade has not stopped the demand, which is as high as ever it was.

"That's why we have this perennial problem," Mr. Kloppers said.

Major Piet Lategan, head of the SAP Endangered Species Protection Unit, has been constantly engaged in trying to combat ivory and rhino horn trade since the unit began its undercover operations last year.

Nearly every week his team arrests poachers and picks up a dozen or so tusks or horns at a time, mostly near South Africa's northern borders.

Much of the goods have been brought across from Front-line states to be sold to wealthy Eastern merchants.

Using a string of agents posing as ivory/horn dealers, Major Lategan has found the networks surprisingly large and difficult to source. To arrest a poacher is simply to scratch the tip of the iceberg.

Even catching poachers in an area as large as the Kruger Park is a real challenge.

"The vastness of the area and the density of the bush make it very difficult to catch the poacher. From a helicopter, it is also hard to spot a poached animal.

"There are no proper boundaries to the park and the fences which exist are easy to overcome," he added.

Major Lategan believes that not only has the ivory trade moratorium forced operations further underground, it has also served to shift the focus from tusks to rhino horn.

"Dealers are now going for rhino horn because it is smaller and can be transported more easily. It also fetches a good price."

Poaching, and its heartbreaking effects on wild game, is a persistent reality which the Kruger Park and other game reserve conservationists have learnt to live with.

The fight against it is constant and frustrating—and the best that can be hoped for is that the demand for ivory and rhino horn—for some reason—subsides worldwide.

Meanwhile, park officials and the police are satisfied that poaching in South Africa's largest game reserve is still under control and has not become a threat to its elephant and rhino population.

## President's Council Issues 'Alarming' Report on Environment

### Main Points Outlined

92WN0133A Johannesburg THE STAR in English  
23 Oct 91 pp 1

[Article by James Clarke: "Shock Report on SA Pollution"]

[Text] An alarming report on the state of the nation's environment was issued yesterday by the President's Council (PC) after nearly two years of gathering evidence.

The report, which warns of serious air pollution, waste problems and desertification, recommends ways to ensure sustainable development.

It is highly critical of the way environmental affairs have been handled, and calls for urgent action "before it is too late."

The purpose of the exercise, which involved all three committees of the PN—constitutional, social and economic—was to find a way to manage South Africa from now on.

The report calls for a greatly expanded Department of Environment Affairs, with more branches, more staff and more money.

It says there should be a moratorium on deproclaiming or "alienating" any existing game reserves and calls for the urgent expansion of existing national parks.

Other points made in the 360-page report:

- An all-embracing environmental protection agency (as in the United States) should not be considered before constitutional negotiations begin.
- The Department of Environment Affairs must be enlarged extensively and take over pollution control from other departments.
- The fragmented approach to environmental management must end.
- The law must be changed so that the Environment Minister does not have to seek permission from other Ministers and all four Administrators before deciding on policy matters. (There is no environmental policy at present, the PC found.)
- Industrialists should be obliged to disclose what they are putting into the air.
- Secrecy over energy should also end.

—The public must have a greater say in all environmental matters and easier access to information.

—A well-paid, regionally based "integrated inspectorate" of specially trained people should track down polluters.

Two major environmental organisations yesterday praised the report. The Wildlife Society said the views expressed were essentially Establishment views, however, and the most important next step would be to develop a broad national consensus in concert with extra-parliamentary organisations.

"The coincident publication of the global strategy document *Caring for the Earth* can usefully inform such a process," Wildlife Society president Naas Steenkamp said.

He said his society found the report lacking on the following issues:

—A nebulous recommendation on the making of national environmental policy by means of constitutionally enshrined rights and values, or a set of distinctive principles.

"This is critically evident in the absence of any fresh and comprehensive vision of how South Africa's environmental management policy should be shaped in the future," Mr Steenkamp said.

—Many proposals were "vulnerable to non-implementation" due to cost constraints, since the report emphasised greater control by central Government without exploring aspects of self-regulation by the private sector.

The Southern African Nature Foundation (SANF) said it was impressed with the report, but there was a need for more work on the specific role at provincial and local government level.

"However, the situation is pretty fluid because of the negotiating process," said Dr. Allan Heydorn, former chief executive of the SANF and now a specialist consultant.

### Commentary on Main Points

2WN0133A Johannesburg THE STAR in English  
23 Oct 91 p 17

#### [Text] Council Weighs in Behind Department of Environment

The government's Cinderella department—the Department of Environment Affairs, with its puny budget and tiny staff—has found its fairy godmother.

This week the President's Council [PC] recommended that the department should get a far bigger budget and a bigger and better-paid staff so that it can get down to the job of managing the nation's environment.

It would, if the PC's recommendations are accepted, take over many duties from other departments and form many new branches, directorates and sub-directorates.

Its Pollution Control Branch would take over water pollution, air pollution, sea pollution, noise pollution, general

pollution prevention, control of hazardous substances, nuclear safety, and water and waste control.

Its Marine Resources Branch would be in charge of coastal-zone management, marine resources and sea fisheries research.

Its Environmental Conservation Branch would be in charge of environmental education, natural environment, resource management, environmental research, and regional and international liaison.

Its Planning and Management Branch would be in charge of finance, personnel administration, environmental management advisory service, law administration, environmental planning, development management and the built-up environment.

The Director-General of Environment would have under him several regional offices, each with its own corps of "integrated inspectors" who would be specially trained to apprehend those flouting air, soil and water pollution laws.

The Minister would be advised directly by a proposed environmental council (on policy) and the existing Committee for Environmental Management on implementing policy.

The first council would comprise experts on education, nongovernment organisations, marine fishing, agriculture, forestry, mining, commerce and industry, waste management, local government, the research community, nature conservation, tourism, recreation, energy, unions, and the planning professions.

Media liaison would be stepped up, the report suggests.

#### Erosion of Soil at Crisis Level

As much as 400 million tons of top soil is washing off South Africa annually, says the President's Council.

It recognises the "limited success" of the Department of Agriculture in combating soil erosion but said more than half of South Africa was threatened by desertification. At least 250,000 ha had already been desertified (changed into desert).

It expressed particular concern for the eastern Cape where 12 million ha from Transkei to Lesotho faced the threat.

It said climatic change could be triggered by the phenomenon. In some areas the only way the damage could be halted would be to reestablish natural vegetation.

Little more than a quarter of South Africa's land was subject to conservation measures.

The Department of Agriculture's resource conservation directorate had 14 conservation officers for the entire country and annually they consulted only 1 percent of farmers.

The PC recommended that farmers be held responsible for the risks of their decisions and that heavier penalties be imposed on those who overstock or abuse their land. At the same time, farmers deserved compensation for conservation measures.

It recommended that the Department of Agriculture's directorate of resource conservation be strengthened and that the directorate of resource management of the Department of Environment Affairs keep tabs on the success or failure of soil conservation measures.

#### **Birth Rate the Biggest Threat**

The rapid increase in the population of South Africa is "indisputably the biggest threat to the environment (and) unless the excessively high growth rate is reduced drastically in the near future, all environmental conservation actions will be futile," says the President's Council's report.

The population would be almost 60 million in 2010. AIDS is not mentioned.

South Africa, in terms of the report, was "as at the time of Union."

The population of the PWV area would be 16 million by 2010 when 80 percent of South Africans would be urbanised.

A way to obviate sprawl was to build higher residential buildings. A massive scheme for socioeconomic upliftment is imperative and land must be made available to new urban dwellers as quickly as possible.

It was imperative that more and cheaper urban land be identified.

#### **Ban Discharges into Sea**

When it comes to water, the PC's report urges changes inland and at sea.

There must be more patrols to hunt down trawlers poaching off South Africa. Only a third of the fish harvested off the coast was caught by our own trawlers.

A thorough survey of the entire coastline was needed urgently and the Environment Department should set up a new directorate of coastal zone management to see that all development within 1 km of the seashore, river mouths (and game reserves) was environmentally acceptable and applied environmental monitoring "from cradle to grave."

No further discharges of effluent "of whatever nature" should be allowed into the sea.

More marine reserves were needed to protect species.

Inland, there must be better control of irrigation, which used 70 percent of South Africa's dam water to irrigate 0.7 percent of the land.

The report said the real costs of irrigation were being hidden and that unsuitable land should be withdrawn from irrigation.

Water Affairs should hand water pollution control to a Department of Environment subdirector.

Degradation of wetlands which keep rivers topped up must stop immediately.

#### **Dump Sites Pose Hazard**

Almost two-thirds of official dumping sites in South Africa posed serious health problems as well as water pollution problems, mostly from leachates (highly toxic juices coming out off rotting dumps).

A third of municipalities had yet to identify future tipping sites and very few existing sites were well managed.

The report recommended minimising the use of plastic and aiding the collection of recyclable materials by paying more for waste.

Waste controls were fragmented and there was no policy. The illegal disposal of hazardous waste was a serious matter yet fines were "absurdly low" (first offence: R500) and had to be increased.

A sub-directorate of Environment Affairs should deal with hazardous waste.

The control of radiation was best left with the Department of Health (it is mostly medical refuse) but nuclear safety (monitoring the nuclear industry, for example) should go to the Department of Environment's suggested new branch, pollution control.

#### **Air Polluters Must Clean Up Act**

The President's Council wants secrecy about pollution to end and also says industry—including Eskom—must be made to clean up.

It also has specific recommendations on how to end what environmental lawyer Professor Andre Rabie called in evidence "the all too cosy relationship" between the air pollution authorities and industry.

It agrees that carbon dioxide pollution (the major gas causing the greenhouse effect) and sulphur dioxide (a cause of acid rain) are serious pollutants.

It acknowledges that South Africa's exports may be affected in future unless local industries cut down on pollutants which are being blamed for damaging the global atmosphere.

It says the 332 million tons of carbon gas being pumped into the air over South Africa amounts to 2 percent of the world's total. It is mostly from the burning of coal by Eskom.

It suggests, because of the global-warming threat, that research into ways of controlling carbon gas should receive an exceptionally high priority.

Another greenhouse gas, methane, which comes from waste dumps and other sources, could be used for energy in place of coal and oil.

With sulphur gas the report takes a tougher line. Evidence was given that it may be damaging human health and plant life and, through acid rain, is corroding structures.

The report says "the eastern Transvaal power stations have the potential to cause the most serious acid rain problem in the world... The high stacks are not working efficiently

because sometimes winds fail to disperse sulphur which tends to fall out over the same areas."

It recognises the high cost of removing sulphur (Eskom has warned it could inflate electricity costs by 30 percent but says pointedly: "Despite the costs, Sasol applies full extraction to this process."

The PC says the Government should demand environmental audits (like annual finance audits, except that they deal with the company's ongoing environmental record), saying air pollution "is a prime instance where environmental auditing should be required."

It sees no reason why State departments should continue to be exempted from pollution laws, nor why industrialists should continue to keep secret the nature of the pollutants going into the air.

It criticises the "extensive discretionary powers" which present legislation allows the chief air pollution control officer, who is "sole arbiter" of what industry puts into the air.

The PC says the Department of Health's air pollution inspectorate has only eight men and recommends the establishment of a specially trained "integrated inspectorate" to seek out all types of polluters.

### **Black Voices Need To Be Heard**

One of the serious shortcomings of the President's Council report is that although it seeks to bring the public and the nongovernment organisations (NGOs) into planning decisions, it received evidence from only two black people.

Black organisations did not respond to invitations.

The PC said it recognised the worldwide trend for public involvement in environment matters and the "increased, if not dominant, role" of NGOs in campaigning for better environment management.

It also recognised that whites were dominant in these NGOs and were mostly urbanised. It spoke of the "traditional" NGOs, which mostly belonged to the Habitat Council and the less formal "Greens."

It said a single forum speaking for First and Third World elements in society should be encouraged to form "a national watchdog over environmental policy."

"Public participation in administrative decision-making and even in the formulation of legislation is supported."

It recommended an environmental tribunal, but was unsure of who should sit on it and how they should be appointed or elected.

### **Closer Scrutiny of Mining Urged**

The PC's report is critical of the Department of Mining and Energy Affairs and mentions "bad management" regarding the impact of mining on the environment.

It calls for closer monitoring of mining and veld rehabilitation by the mines.

It calls for integrated environmental management (IEM) to be compulsory for mining operations, which means mines would have to environmentally evaluate all they do during the entire life of the mine.

Roads: The PC wants all road building from now on to be subjected to IEM.

Factories: The proposed environmental council must investigate suitable environmental audits, which can then be applied to each type of industry "as a part of the environmental regulations which can become compulsory after a certain experimental period."

### **Enlarge National Parks, Reserves**

A feature of the President's Council report is the attention it lavishes on nature conservation. It calls for an urgent inventory of what South Africa has left from the point of view of plant and animal species as well as a map showing what special places should be protected from development.

It says that to ensure the survival of 50 percent of its variety of fauna and flora, South Africa would have to take immediate steps to enlarge national parks and nature reserves.

Among national parks capable of being enlarged, it specifically mentions Addo Elephant Park (which was recently enlarged), the Kalahari Gemsbok and the new West Coast National Park.

It also calls for an effort to preserve witness areas of all South Africa's different types of veld, some of which are endangered.

It singles out Natal Parks board for special praise for its "outstanding system of parks which are exceptionally well managed" and praises the SA Nature Foundation which has, through R32 million in donations from commerce and industry, helped to expand and create reserves throughout the region.

It sees national parks as priceless assets and says the State should supply the funds for their expansion. It suggests that the National Parks Act be amended to allow the board to raise loans on the open market for the purchase of land or the upgrading of tourist facilities.

It says privatisation of parks is not in the national interest and subscribes to the international philosophy that national parks are the State's responsibility.

It believes more attention should be paid to those communities living outside the parks and who perceive no advantages from nature conservation.

The PC says between 6 and 8 percent of South Africa has been set aside as nature reserves and parks, which is not far short of the internationally recommended 10 percent.



**Reaction to Report**

92WN0133A Cape Town WEEKEND ARGUS in English  
26 Oct 91 p 24

[Article by John Yeld]

[Text] A dynamic, hard-hitting report whose clear-sighted recommendations will transform the South African environment?

Or yet another tome from yet another inquiry destined to gather dust on the shelves of some government warehouse?

The President's Council this week unveiled its vision of how to save the country's deeply threatened environment by tabling its "Report on a National Environmental Management System."

The 300-page report was compiled after the council's three committees considered written evidence in the form of 178 memoranda and a wide variety of submitted literature and heard oral submissions from 50 government departments and organisations represented by 188 individuals.

If the council has its way, South Africa's "Cinderella" Department of Environment Affairs will be transformed and get real muscle to tackle some of the country's urgent environmental problems.

But will its vision prevail?

Reaction to the report has been mixed. While there is general agreement that the report pinpoints many of the weaknesses in existing environmental management structures and offers many sound recommendations, there is serious doubt as to whether the government has either the political or the financial resources to give effect to the recommendations.

Dr. Allan Heydorn, a former executive director of the Southern African Nature Foundation and a member of the Council for the Environment, said he believed the report provided an "excellent" review of the role of the central government in environmental management.

"But as far as second-tier government and associated levels are concerned—such as the provinces and the National Parks Board, for example—some unclarity remains and that will have to be looked at."

Dr. Heydorn said the President's Council deserved "great credit" for examining the matter with depth and thoroughness.

"And as a basis for negotiations for any future dispensation, it is a really valuable tool," he added.

"But these are merely preliminary impressions and obviously the report will have to be looked at in detail by bodies such as the Council for the Environment."

Professor Richard Fuggle, head of the department of environmental and geographical sciences at UCT [University of Cape Town] and also a member of the Council for the Environment, said it was "unfortunate" that the President's Council had taken as one of its main points of departure that there should be as little change as possible to existing institutions.

"Because it meant essentially adapting the current structure instead of grasping the opportunity of exploring possible ways forward in the environmental management in this country," he said.

The document was also founded on optimism that there would be substantially increased spending on environmental matters, Professor Fuggle said.

"I'm very dubious that in the present economic climate the government will be able to find any money to be able to give effect to many of the report's recommendations. A lot of these are wishful thinking."

Professor Fuggle was also concerned about the implications of proposed changes to the Council for the Environment by replacing it with an Environment Council of largely nominated representatives of various bodies, some of which were not centrally concerned with the environment.

"It appears they are changing the whole *modus operandi* of the council," he said.

The proposal that a standing committee of this new Environmental Council would hear public complaints and make recommendations to the minister on how to resolve disputes was problematic, Professor Fuggle added.

The committee would require additional professional staff and resources to function effectively.

"This will not be a part-time job for people meeting four times a year. They just haven't thought this through."

Similarly, the recommendation that the proposed Environmental Council should issue an annual "state of the South African environment" report similar to Canada and New Zealand was sensible but the implications appeared not to have [been] considered, he argued.

"In each of these countries an entire staff of professionals has been appointed to do the job. Yet the (existing) Council for the Environment has not been provided with any professional support and has seconded secretarial support."

To produce a "state of the environment" report would require at least 10 professionals, Professor Fuggle argued.

"It's all very well calling for that, but the implications are vast... It's pie-in-the-sky," he said.

Mr Keith Cooper, the Wildlife Society's director of conservation, said the report contained "lovely words and superb recommendations."

"But these will amount to nothing unless the government gets off its butt and really jacks up the Department of Environment Affairs [DEA]. It is a weak department, inadequately staffed and totally inappropriate for the job required of them. They need a proper budget."

Mr. Cooper also said the report did not address the question of fragmentation of conservation management among the homelands.

"For example, there are five different departments involved in the field of nature conservation alone in a small province like Natal, all working independently. This plethora of conservation bodies is an absolute can of worms and the President's Council report has not dealt adequately with that."

"Until the report's recommendations are implemented on the ground, it's just words."

Mr. Jan Glazewski, a UCT researcher specialising in environmental law who gave evidence to the council, said the report was "in general very comprehensive and all-embracing."

In particular he welcomed its recommendations that environmental provisions should be written into a new constitution.

"There were representations for an independent environmental agency, and although the report hasn't gone that far, it does definitely recommend strengthening the DEA and that is welcome."

Mr. Glazewski said he agreed with the council's opinion that South Africa did not require a "super" department with all-embracing executive responsibility for environmental management.

"But there is definitely a need for an independent agency to monitor and enforce environmental legislation and administration. For example, government departments can't sue each other, so the Department of Environment Affairs has only persuasive powers, not legal powers, to try and enforce compliance from other departments taking inappropriate environmental action.

"So that is perhaps a failing of the report. Although it does talk of an environmental tribunal, it needs further elaboration in terms of its powers. Will it have real teeth? I'm a bit sceptical about that."

Mr. Glazewski said his main concern was that the "many good recommendations" in the report were taken seriously and actually implemented.

Environment Affairs minister Mr Louis Pienaar issued a clear warning this week to those who may have been hoping the report would clear the way for a "quick-fix" solution to South Africa's environmental problems.

The government would study the report and would table a White Paper in parliament in response "in due course," he said.

#### **New Solid Waste Disposal Plant Turned Over to Mossgas**

*MB2111135491 Johannesburg SAPA in English  
1249 GMT 21 Nov 91*

[Embargoed by SAPA until 1600 GMT, 21 November]

[Text] Johannesburg Nov 21 SAPA—An R20 million [rand] solid waste disposal facility for the Mossgas onshore plant near (Mossel) Bay has been completed and was officially handed over to Mossgas Operations on Thursday.

In a statement Mossgas said the facility was one of the most advanced of its kind in the country and was an example of Mossgas' commitment to conserve the environment in which it operates.

The solid waste disposal facility, situated on a 400 hectare site west of the refinery, would handle approximately 400,000 cubic metres of waste annually.

The first stage of the facility consists of a series of 6 drained compacted earth basins and 2 special waste pits for hazardous waste as well as a containment dam for contaminated stormwater run-off.

More than 30 types of waste including hazardous and wastes with high pollution potential and domestic waste will be landfilled.

The services of the country's top experts in this field have been obtained to draw up a long term waste management strategy for Mossgas and to design and develop the landfill area.

Mossgas stipulated the facility had to be environmentally sound from the outset and that it had to conform to current environmental legislation taking future trends into consideration.

Consideration was also given to possible surface and ground water pollution aspects, air and dust pollution, litter, safety, smells and the aesthetics of the site.

Possible offensive smells would also be neutralised. An extensive ground water monitoring system was installed to monitor pollution of ground water and soil structures. Monitoring of groundwater and soil structures has already started.

United State Environmental Protection Agency (EPA) standards were used by the consulting engineers as the basis for the design and liner selection.

Once the wastes become available and detailed characteristics are known, liner compatibility will be checked and the design adjusted as required.

The design initially provides for a limited waste disposal capacity to enable Mossgas to assess the volumes, nature and hazard rating of wastes before committing additional capital expenditure and sources.

The landfill area will be eventually be rehabilitated to its natural state.

#### **ZIMBABWE**

#### **Government Sets Pre-UNCED Review of Environmental Policy**

*92WN0107C Harare THE HERALD in English  
20 Sep 91 p 1*

[Text] The Government is tightening and coordinating all legislation and policies on the environment to combat degradation, the Minister of Environment and Tourism, Cde Herbert Murerwa, said yesterday.

Opening a one-day conference in Harare on nongovernmental organizations country report to the United Nations Conference on Environment and Development in Brazil next year, Cde Murerwa said it was difficult to respond

effectively to environmental issues because several environment-related legislations fell under different ministries.

The Air Pollution Control Act, for instance, fell under the Ministry of Health, the same with the Water Pollution Act which came under the Ministry of Energy and Water Resources and Development.

He said the review was aimed at how best these could be coordinated without necessarily removing them from the respective ministries, since some ministries were best equipped to deal with the problems.

Policies which had an impact on the environment were also being reviewed to identify gaps, both institutionally and legally.

Cde Murerwa said it was the understanding of national priority environmental problems which should form the basis of contributions to the global debate in Brazil next year.

The most serious environmental problems confronting developing countries are land degradation, desertification, floods and droughts, soil loss, deforestation and the worsening quality and supply of freshwater resources.

These problems constituted a major part of the global environmental degradation to which priority should be accorded at the conference.

"We must come back from Brazil convinced that decisions taken will enhance the alleviation of our problem at home. Anything to the contrary would be a betrayal of our own aspirations for a sound environment to sustain our economic development process," Cde Murerwa said.

### **South China Land Degradation Poses Problem for Hong Kong Food Supply**

92WN0140A Hong Kong SOUTH CHINA MORNING POST in English 26 Sep 91 p 7

[Article by Kathy Griffin]

[Text] Southern China—the source of most of Hong Kong's food—could become famine-stricken if action is not stepped up to halt degradation of the land, experts have warned.

Chopping down forest, over-cultivation and other poor farming techniques have led to soil erosion, desertification and general degradation of about 200 million hectares of land in China, much of it in the south.

Experts believe degradation within the next 50 years could hinder the area's ability to harvest crops for export and feed a population estimated to be increasing by 1.4 percent annually.

A workshop this month in Hong Kong looked at proposals and studies from researchers in South China for restoring the land to productive use and halting the degradation.

Ms. Alison Hess, an American resource development expert who helped to organise the workshop, said: "If something isn't done within the next 50 years and there is continuing land degradation, it probably means declining food production, which means declining food availability per capita, which means possibly famine."

Last year, China imported 15 million tonnes of grain despite a record harvest of 435 million tonnes.

Experts in China are experimenting with new farming and engineering techniques to expand agricultural land and boost harvests, and the workshop was staged so they could share information with each other and the rest of the world. It was funded by the American-based Rockefeller Brothers Foundation.

Paramount Chinese leader Mr. Deng Xiaoping's daughter, Mrs. Deng Nan, who is director-general of China's Department of Science and Technology for Social Development, addressed the conference and said land degradation was an enormous problem in many countries.

China had already achieved much, restoring 10 percent of former desert and making some headway in arresting soil erosion and low crop yields.

But she said: "Despite the remarkable achievements... China is still facing a great challenge in the future."

Measures were underway to further address the land degradation problem, including trying to stop the slashing of tropical forests and protecting species that were disappearing with the forests.

Ms. Hess' colleague, Dr. Walter Parham, said the problems in Guangdong Province were serious and Mrs. Deng had asked them to propose ways of coping with land degradation for China's Eighth Five-Year Plan.

"Restoring and improving the land is a very high priority," he said.

Deforestation was a major reason for the degradation, although over-use and over-fertilisation also contributed.

Young trees were often cut down for fuel, which left no forest cover to hold the soil in place. Heavy rains washed the topsoil away, making it difficult to grow anything on the land.

Simply planting trees did not solve the problem, and engineering work, such as the building of terraces, was needed to prevent the rain and soil washing away, Dr. Parham said. Also, alternative fuel sources needed to be provided.

Southern China, with its warm and wet climate, could produce two or three crops a year if the land was restored and used properly, and it could be an important bread-basket for the rest of the country and Hong Kong, he added.

In addition to crops for food, China grows medicinal cash crops, fuel wood, fodder and cut-grass for livestock.

Ms. Hess said once a successful technique for restoring the land was found, it would probably take three to four years to take hold and yield good results.

"It not only has to be ecologically and economically sound, but it has to improve the standard of living," she added.

### **Gezhouba Water Control Paves Way for Three Gorges Project**

OW1911085191 Beijing XINHUA in English 0724 GMT 19 Nov 91

[Text] Wuhan, November 19 (XINHUA)—The Gezhouba Water Control and Power Project, the largest so far in China, has operated smoothly for 10 years, withstanding stress by floods and silt deposits.

The smooth operation shows that China is capable of building key water control and power projects including the Three Gorges Project now on the design table, said water control experts.

The Gezhouba project is the largest water control and power project on the Yangtze River and the third longest in the world. Work started at the end of 1970 and the project went into operation in 1981. Its installed capacity is 2,715,000 kW [kilowatts] and average annual electricity output is 15 billion kWh [kilowatt- hours].

Over the past 10 years, it has withstood the test of floods, including a water flow at a speed of 45,000 cubic meters per second, on 24 occasions and the rare flood peak in 1981 which pounded the dam for four consecutive hours at a speed of 72,000 cubic meters per second.

Scientists and technicians have also succeeded in preventing the dam from being silted up, a problem that had caused the greatest concern about the project, as the Yangtze River discharges more than 500 million tons of silt a year. The river bed has been kept free of silt deposits.

All the indices, including the sinking and leaking of the dam, are all within tolerable ranges, according to experts.

Many experts agree that the success of the Gezhouba project has paved the way for the construction of the long-controversial Three Gorges Project.

### **Hainan's Developmental, Environmental Challenges**

*OW2011063491 Beijing XINHUA in English 0523 GMT 20 Nov 91*

["Roundup: Hainan Faces Development and Environment Challenges"]

[Text] Haikou, November 20 (XINHUA)—With the development of the economy, the Hainan Island, the second largest in China, is facing grave challenges with regard to environment protection, although the natural ecology has largely been kept in tact.

A recent expert survey of the environmental effect of some industrial projects showed that the ecology and environment have been well protected on the island, which became China's largest special economic zone and a province in 1988.

Included are the Hainan iron and steel plant, which has a design production capacity of 450,000 tons of steel a year, a cement plant with an annual production capacity of 820,000 tons in Changjiang County, the Fenghuang (Phoenix) Airport in Sanya City and a highway section in the eastern part of the province.

Professor Jin Jianming, deputy director of the State Environment Protection Bureau and a noted Chinese ecologist, said after the survey that the natural environment is almost free from pollution.

Xie Zonghui, director of the Hainan Provincial Environment Resources Bureau, said when the provincial government decides to construct key projects, it usually takes into consideration environmental problems.

Hainan was still a backward area in early 1988 when it was designated to be the country's largest special economic zone and a province.

At that time, the average per capita annual income of one-sixth of its population of 6.2 million was less than 200 yuan.

In China, people with an annual income of less than 200 yuan per person and a grain portion of less than 200 kg per person are regarded as living under the poverty line.

To boost the economy, the provincial government has concentrated over the last three years on making full use of local resources including tropical crops, tourist attractions and mineral and natural gas resources.

Drawing lessons from industrially-developed countries, according to Bao Shiming, deputy governor of the province, Hainan has formulated a basic policy to coordinate economic development with environmental protection during its construction.

According to a development plan, the island is divided into several parks. The northwestern part will be a petrochemical park and the southwestern part will be a heavy industrial park, where particular attention is required with regard to pollution control.

The northern and eastern parts of Hainan are scheduled for developing into economic parks with light pollution and southern Hainan will become a tourist zone free from pollution.

Xie noted that Hainan has taken the lead in the country in making unified management of the environment and natural resources.

So far 19 cities and counties of the province have set up organizations to manage the environment and natural resources. These organizations employ more than 1,000 people.

A survey report shows that Hainan's environmental protection departments have inspected 1,080 projects over the past three years.

The environmental protection facilities installed in these large- and medium-sized projects are all up to the state standard.

The Hainan Provincial People's Congress has issued 'Hainan Provincial Regulations on the Protection of Environment and Natural Resources', 'Hainan Provincial Administrative Regulations on the Exploitation of Natural Reserves', and 'Hainan Provincial Administrative Regulations on the Protection of Wildlife' over the past three years.

In addition, the provincial government and the provincial environmental resource bureau have promulgated 20 administrative regulations and rules for environmental protection.

Hainan's practice has aroused the attention of experts in international issues who call on other countries to follow the example of Hainan.

Last September, Hainan set up an international consulting committee on Hainan's economic development and environmental protection, which consists of 21 experts in environment protection at home and abroad.

Members of the committee serve as advisors to the provincial government in making policy decisions.

Early this year, the Asian Development Bank offered Hainan technical aid totalling 600,000 U.S. dollars to help it to work out a general program and a practical plan for managing the environment and natural resources.

The deputy governor acknowledged Hainan has made progress in environment protection. However, it is still faced with difficulties such as lack of funds, research facilities, equipment and manpower.

Bao is expecting more international support.

### **World Bank Loan To Finance Environmental Project**

*OW2011181391 Beijing XINHUA in English 1330 GMT 20 Nov 91*

[Text] Beijing, November 20 (XINHUA)—The World Bank approved a loan of 125 million U.S. dollars today to finance a multipurpose environmental project in Beijing.

According to a world bank representative here, this is the 100th loan the world bank has extended to China since it began lending to the country in 1981.

S.J. Burki, China director for the World Bank, described the project as "an effort to address the immediate environmental needs of Beijing municipality, while simultaneously developing an integrated plan to meet future environmental challenges."

He added that the project will establish Beijing as an important information center for other cities with similar environmental problems.

The loan will be used for the construction of sewers in densely populated urban areas, a district heating system to replace units which burn raw coal, and for a large sanitary landfill for refuse disposal, as well as for modifications to the present processing facilities for treating waste from the city's worst industrial polluters.

The Beijing municipal government will contribute 124.2 million U.S. dollars for the project, while a Japanese grant will add 1.6 million U.S. dollars. Chinese industrial enterprises will provide 53.7 million U.S. dollars.

### **Success of Shelterbelt Project Aids Agriculture**

*OW2811042791 Beijing XINHUA in English 0304 GMT 28 Nov 91*

[Text] Chengdu, November 28 (XINHUA)—It is now slack winter season. However, millions of farmers, old and young, men and women, in Sichuan Province, are busy planting shelter forests in the Yangtze River valley despite cold weather.

While wiping his sweat, an old farmer said, 'we have endured the sufferings of natural disasters resulting from denudation and soil erosion. Therefore, we voluntarily turn out to plant trees in a bid not to let our descendants suffer again.'

Known as one of the world's eight key ecological projects, the shelter-forest project started construction with a total investment of 3.3 billion yuan across 145 counties in Jiangxi, Hunan, Hubei, Guizhou, Yunnan, Sichuan, Qinghai and Gansu Provinces in 1989.

So far, people have planted about 2 million ha [hectares] of tree belt, which are expected to extend to 6.7 million ha by the end of this century.

A Sichuan provincial official in charge of forestry work said Sichuan will undertake about one-half of the work of the first construction phase.

The official said last year's afforestation quota was 220,000 ha. However, people here actually grew 269,800 ha of trees. The first nine months of this year saw the province complete its annual tree-planting quota, three months ahead of schedule.

The official noted that construction of shelter-forest along the Yangtze River over the past three years has enabled the province to expand its forest area by 653,000 ha.

He said the farmers' enthusiasm for planting the shelter-forest in the Yangtze River valley is beyond his expectation.

People in Langzhong City, used to being hit frequently by droughts and floods, planted trees on 15,740 ha last year, exceeding the plan by 490 percent, and 7,700 ha this year, topping the schedule by 47 percent.

Altogether 1,600 barren hills in the city are covered with green through a 3-year effort in afforestation.

Sichuan is China's largest agricultural province. Zhang Haoruo, governor of the province, has called on 69 counties engaged in the construction of the shelter-forest project to regard the project as the 'fundamental project to boost agriculture.'

The province has formed a leading organization consisting of 1,000 people to guide the project, and these counties worked out objective responsibility, which links local officials' achievements on the project to their official careers.

As a result, officials at different levels, including the governor, have inspected regularly the shelter-forest project to give on-the-spot instructions and help solve problems.

They also give the green light in allocating investment for construction of the project.

Seeing the great determination of officials, farmers voluntarily donate money and turn out to plant trees.

Yang Deqing, a farmer of Wanli Township, Kaixian County, withdrew 4,000 yuan from the bank to help his township purchase saplings.

Zhang Qingfang, a farmer in her 70s of Shuiguan Township, Langzhong County, insists on boiling water and sending it to nearby hills for villagers who plant trees to drink.

'People are making a contribution to future generations,' said the old lady, 'I feel upset if I do not put in a bit of effort.'

According to statistics, Sichuan has spent 840 million man-hours on the construction of the shelter-forest in the Yangtze River valley.

The survival rate of trees planted on 653,000 ha in the province over the past three years has topped 85 percent thanks to scientific afforestation.

The official was optimistic about the project and said the forest coverage rate of the upper and middle reaches of the Yangtze River would be up from the present 19.9 percent to 40 percent.

Upon completion of the first construction phase, the project will greatly help improve the ecological environment, increase 2.8 million cu m [cubic meters] of timber a year and make profits of 5 billion yuan from diversified economies.

Many places will put on a new look of green hills and clear water, where farm crops and forests grow luxuriantly and domestic animals all thrive.

## REGIONAL AFFAIRS

### SRV, Indonesia Sign Cooperation Agreement on Forestry

BK0811160591 Hanoi VNA in English 1520 GMT  
8 Nov 91

[Text] Hanoi VNA Nov. 8—Vietnamese Minister of Forestry Phan Xuan Dot and his Indonesian counterpart Hasjrul Harahap signed in Ho Chi Minh City on November 7 an agreement on forestry cooperation between the two countries.

The two sides agreed to invest in the preservation of natural resources in Vietnam, and coordinated in research, personnel training and information exchanges.

After the signing ceremony, the People's Committee of Ho Chi Minh City hosted a banquet in honor of the Indonesian forestry minister and his party.

While in Ho Chi Minh City, the Indonesian delegation visited the boa rearing enterprise in Thu Duc on the city's outskirts and the Ma Da timber plantation in Dong Nai province. The Indonesian delegation presented flood victims in the Mekong River delta with 10,000 US dollars.

The Indonesians left Ho Chi Minh City for home this morning.

### Future of Thai Logging Concessions in Burma in Question

BK1711054891 Bangkok THE NATION in English  
17 Nov 91 p B4

[Report by Aphisak Thanasetthakon]

[Text] A political storm is brewing in Thailand and abroad that is threatening the operations of Thai loggers who have won concessions to cut timber inside Burma and along the lengthy border between the two countries.

Logging in Burma started off when Gen. Prem Tinsulanon was the Thai prime minister in the early 1980s. At that time, there was widespread illegal felling of trees in the thick Burmese forests bordering the western edge of Thailand. Consequently, Bangkok and Rangoon decided on an official agreement to log timber in order to eradicate the uncontrolled activities of the illegal loggers. Gen. Chawalit Yongchaiyu, then army chief and supreme commander, was dispatched by the Prem administration to close the deal with Burmese counterparts. This involved Rangoon agreeing to award legal concessions to Thai firms to fell trees in its forests.

Chawalit's efforts, successful because of his close relationship with the powerful Burmese military figures of the time, opened the way for many firms to take up logging in Burma, with the first successful concessionaire being Boonsawad and Associates Co. This firm signed a deal with Myanmar Timber Enterprise Co, the Burmese state agency in charge of logging, and soon other firms followed suit.

When the Chatchai administration imposed a nationwide logging ban in 1989, Burmese concessions became more attractive and were keenly sought by wood-using industries

in Thailand. Because of the consequences of that controversial decision—in which nearly 300 logging concessions in Thailand were withdrawn—the Chatchai government unwittingly gave an added boost to Thai logging operations in Burma.

Government encouragement, direct and indirect, raised the hopes of industries reliant on timber, while loggers seized the opportunity to further expand their operations in Burma and increase profits in Thailand where domestic supplies were rapidly depleting.

To date, a total of 28 firms hold concessions granted by Burmese authorities, excluding the recently-expired concession of the state-owned Forest Industry Organization. Among them are Thai Sawad Co, Chao Phya Irawadee Co, Union Par Co, Santi Forest Co, Sirin Technology Co, Thai Pong Sawmill Co, Muang Pana Co, Pathum Thani Sawmill Co, Thai Teakwood Veneer Co, Chokepana Co, Panachai Sawmill Co, Pathumthong Sawmill Co and Si Denchai Suphanburi Co.

During the past couple of years, these firms have realized that business isn't as "simple" as thought earlier. Several firms which do not have associated industries to create added value to the Burmese logs, have found that the prices they can command are not that different from supplies from other sources which are available in Thailand's domestic market.

Due to the fact Rangoon cannot impose its authority on the border areas controlled by ethnic rebels, the "hidden" cost of logging by the Thai firms in their concessions in these areas is significant, further cutting the profits of the wood brought over the border for sale in Thailand.

Aside from the concession fees paid to Rangoon, Thai loggers are subject to a long list of unofficial fees demanded by ethnic groups along the routes used to transport logs into Thailand. The cost is said to be as high as Bt10,000 per cubic meter, making the concessions unattractive.

On November 5, their future became even more uncertain when an influential army-run radio program launched a broadside against Thai logging in Burma. In a broadcast entitled "Thai loggers and their Burmese concessions", the Sayamanusati program proposed that the government should not promote logging because of condemnation from the anti-Rangoon international community.

The November 5 programme pointed out that former high-ranking officials in the army with close contacts with Burmese generals were behind Thai loggers doing business in the neighboring country. "But as time goes by, the concessionaires have been disappointed and many of them are now suffering losses. They have to spend tens of millions of both on building roads to move the logs out of Burmese forests, and a considerable sum in unofficial fees to Burmese ethnics," it said.

Many people could not rule out political motives behind the program, especially as it was broadcast on an influential and respected programme managed by the army. They



had no doubt that the person implicated in the program was none other than Gen. Chawalit, a leading candidate for the premiership which—if certain powerful interests in Thailand have their way—may be set up for Gen. Suchinda Khraprayun, the incumbent army boss and effectively the most influential figure in Thai politics at this time.

As is widely known in business circles, Gen. Chawalit, Suchinda's former boss and now seemingly a political rival, was the authoritative figure behind the successful entry of a number of Thai logging firms into Burma. An important requirement laid down by Rangoon was that Thai firms seeking concessions must have the endorsement of 'respectable' high-ranking Thai officials.

Gen. Chawalit reportedly gave endorsement to Sirin Technology Co, Union Par Co and Santi Forest Co, while the other concessionaries got the backing of people who were then members of the Cabinet.

Undoubtedly, the Sayamanusati commentary created an uproar in business and political circles, prompting Gen. Suchinda and Foreign Minister Asa Sarasin to reassure the worried loggers that Thailand has no intention to restrict or cut back its relations with Burma. Their words of solace might not suffice now that one concessionaire has exposed the hidden expenses that have to be paid by Thai loggers, and declaring he will get out of the business as a result.

### **Shanghai Hosts Asian Meeting on Water Pollution Control**

*OW2011140191 Beijing XINHUA in English 1312 GMT 20 Nov 91*

[Text] Shanghai, November 20 (XINHUA)—The third Asian meeting of the International Association on Water Pollution Research and Control (IAWPRC) was held in Shanghai today.

The IAWPRC is a special academic group for the research and control of water pollution. China became a member of the organization in 1985 and has been very active in participating in its activities.

The theme of the meeting is 'the development and the control of water pollution'. Representatives of the meeting will hold talks on aspects such as technologies for pollution control, exploiting waste water and policies for the control of water pollution.

The meeting accepted 174 research papers which reflect the latest results of the control of water pollution and the development trend.

More than 300 experts from over 20 countries and regions are participating in the meeting, which was jointly held by the Chinese committee of the IAWPRC, the China State Environmental Protection Bureau and other organizations.

### **Japan, South Korea Sign Accord on Environmental Cooperation**

*SK2211072391 Seoul YONHAP in English 0529 GMT 22 Nov 91*

[Text] Seoul, Nov. 22 (YONHAP)—South Korea and Japan signed an agreement on technological cooperation in environmental preservation during a meeting of the Korea-Japan science and technology joint committee here Friday.

The agreement mainly covers exchanges of environment-related publications and information, and environmentalists between the two governments.

Environmental Management Corp. of Korea will have a chance to study Japan's pollution prevention work in cooperation with the Public Nuisance Prevention Corp., which comes under the umbrella of the Japanese Environment Agency, an official who attended the meeting said.

It was also agreed the two sides should push joint research in some 30 projects, including development of a submarine for seabed use and tracking acid rain in Northeast Asia.

Japan expressed a willingness to let Korea participate in such international research projects as development of computers with neurological circuit network.

## **AUSTRALIA**

### **Environmental Lobby Lashes Out at Logging Legislation**

*BK2911095891 Melbourne Radio Australia in English 0500 GMT 29 Nov 91*

[Text] The Australian Government has introduced resource security legislation which will give large-scale processing companies guaranteed access to native forests. The move is being condemned by the powerful environmental lobby, which has accused the government of betrayal. Tony Hastings reports from Canberra:

[Begin Hastings recording] The legislation will give companies guaranteed access to native forests for projects of more than \$100 million which process the timber to a higher value.

The move is expected to pave the way for large-scale paper pulp mills. The environmental lobby, whose support was crucial to the government in the last elections, says the legislation was a betrayal, but the environmentalists concede the legislation is likely to be passed because the government policies are now similar to those of the opposition. Therefore, the Greens have decided to mount a grassroots education campaign to mobilize public opinion (?and also) to change the government's mind. [end recording]

## CAMBODIA

### Forest Reserves May Be Threatened by Arrival of Peace

BK1811063391 Hong Kong AFP in English 0204 GMT  
18 Nov 91

[By Anchali Worachet]

[Text] Koh Kong, Cambodia, Nov 18 (AFP)—The first casualty of peace in Cambodia could be the country's rich forest reserves, largely untouched over the last two decades of war, revolution and upheaval.

Cambodia is in desperate need of foreign exchange for its reconstruction but both Thai and Cambodian officials have expressed fears that the country will fall easy prey to foreign loggers.

In this bustling border trading port in southwest Cambodia, huge stacks of freshly cut planks lie awaiting shipment to Thailand.

Dock workers were busy loading wood onto already heavily laden ships, preparing to set sail for Thai ports in Klong Yai district a few kilometers (miles) to the northwest.

Since a nationwide logging ban was imposed in Thailand in 1989, the country's logging industry has looked to neighbors for timber, and Cambodia's rich forests look set to become a major source of supply.

At least three Thai companies, one in a joint venture with Japan, currently have logging concessions in different areas in Cambodia, including some controlled by the communist Khmer Rouge guerrilla faction.

In Koh Kong province, a Thai logging company has been granted a concession allowing it to cut 20,000 cubic meters of timber a year for an annual payment of two million dollars.

Koh Kong Governor Rung Phlamkesan said in an interview with AFP that he is aware of the consequences of rapid deforestation and has tried to limit concessions in the province.

"We are selective in giving concessions. We only allow logging in certain areas but bigger deals are usually referred to Phnom Penh," he said.

"Cambodia needs money. That's why we give the concessions, but we will make an effort to limit them," he said.

But with peace arriving in Cambodia it is not certain how long the effort to limit concessions will last or for how long authorities in Cambodia will be able to resist the temptation of quick profits.

At least 10 Thai companies are currently courting the Phnom Penh government for logging deals and look likely to win contracts, according to one well-informed source.

"It is easier to make deals now that peace has come. People know the situation. They don't have to worry about the different factions they know who is in charge and who to contact," one Thai businessman said.

At least eight more border checkpoints are to be opened in this area next year for hauling logs into the neighbouring Thai province of Trat.

Thai logging companies and Cambodian authorities have been discussing the possibility of pushing a road through linking Trat and Cambodia's highway four in Kompong Som province.

Thai loggers proposed that the Cambodian Government pay for the road construction with timber, according to one well-informed source familiar with business dealings along the border.

The governor of Trat, Amon Anantachai, urged Cambodian authorities to map out a conservation and reforestation plan before it is too late and the forest completely cut.

"I'm not saying that we should stop felling trees in Cambodia completely. We need their timber, but that doesn't mean we should cut it indiscriminately," said Amorn, a self-proclaimed conservationist.

Deforestation in Cambodia will affect Thailand too, Amorn said.

"If Cambodia loses its forest, we'll lose our rain and the fruit-growing industry in provinces near the border will disappear," he said.

"I want to ask the Cambodian Government to start drawing up a conservation and reforestation plan. Otherwise, the forest will all be gone before they even know it," he said.

## HONG KONG

### Increased Vehicle Emission Testing To Cut Pollution

92WN0139A Hong Kong THE HONGKONG  
STANDARD in English 5 Oct 91 p 4

[Article by Franz Leung]

[Text] Hong Kong's air pollution problem may be reduced significantly with a 200 percent increase in the capacity for testing smoke-belching vehicles.

The decision by the Environmental Protection Department [EPD] to privatize smoke testing will pave the way for the expansion of Hong Kong's smoke-testing capacity.

EPD assistant director Fred Tromp said smoke-belching vehicles spotted by EPD would be sent to one of the 18 designated garages for tests.

Scheduled to take effect on 14 October, the new scheme will boost the current vehicle-testing capacity to 50,000 a year.

At present the department's test centre at Ho Man Tin can only handle tests for 17,000 vehicles a year, Mr. Tromp said.

The list of designated garages was published in the Government Gazette yesterday.

Mr. Tromp said about 13,000 diesel engine vehicles, or 10 percent of all diesel-driven vehicles, were emitting smoke on the road.

These vehicles contribute up to 80 percent of air pollution on Hong Kong's roads.

Mr. Tromp also said the World Health Organization has identified vehicle emissions as a likely cause of lung cancer.

"The EPD centre will handle large vehicles which are too big to be handled by most of the private centres," Mr. Tromp said.

Garages will be inspected regularly to ensure the high quality of testing equipment.

The privatized scheme will enable tests to be conducted two or three weeks after a vehicle is identified as belching smoke.

Drivers will also be required to pay a \$140 testing fee.

"What hasn't been changed in the control programme is that a vehicle licence may be cancelled if the vehicle fails to pass the testing requirements, or if its owner fails to take it in for the emission test," said Mr. Tromp.

"The licence will be re-issued only after satisfactory examination by the Transport Department, including a test on its emission."

Last year, 617 vehicle licences were cancelled after their owners failed to submit their vehicles for emission tests at the EPD centre.

Mr Tromp said the EPD would also double the number of smoke spotters to 500.

He added some vehicles were emitting smoke mainly because of poor maintenance. Most vehicles needed only minor adjustments costing \$100 or \$200.

The privatization of smoke-testing is part of a series of actions to combat pollution caused by smoky vehicles.

In the long-term, Mr. Tromp said, the EPD would consider changes in legislation to require vehicles to have check-ups twice or three times a year.

But the changes would not be in place for another two or three years.

Mr. Tromp also said that next year the EPD would propose that owners of diesel-engine vehicles use new engines as a way of curbing smoking problems.

An educational campaign using leaflets will start next week urging vehicle owners and drivers to have regular maintenance on their vehicles.

Mr. Tromp stressed that diesel engines did not have to cause smoke or pollution problems.

## JAPAN

### Group Calls for Halt to Nagara River Dam Construction

OW1111115591 Tokyo KYODO in English  
0947 GMT 11 Nov 91

[Text] Tokyo, Nov. 11 KYODO—The World Wide Fund for Nature Japan Committee (WWF Japan) on Monday called for a halt to a controversial dam construction project at the mouth of the Nagara River in Nagashima, Mie Prefecture.

In the November issue of the committee's magazine, WWF Japan said a complete environmental assessment should be conducted in order to avoid damaging the local ecosystem.

With the opinion piece, WWF Japan has now joined the Nature Conservation Society of Japan, the Wild Bird Society of Japan, the Ecological Society of Japan, and the Japan Freshwater Fish Preservation Association and other environmental groups in opposing the construction project.

The project originally won cabinet approval in 1965 [as received] and construction was initiated in July 1988 to prevent floods and provide water to nearby industrial areas.

In the magazine article, the committee argued that a dam across the mouth of the river would be an obstruction to the lives of a number of varieties of fish.

The mixing of fresh water and sea water would exterminate some forms of life dependent upon the river and changes in the river deposits would negatively affect plants, insects, and birds that live along the river, WWF Japan opined.

The article argued the dam should not be used as an expedient means of flood control, but suggested that efforts should be made to use trees and their water preserving abilities as flood control countermeasures.

"Looking at this scientifically, it is unavoidable that we strongly oppose (the project). Voices demanding preservation of the environment have grown wider in scale worldwide," the article said.

Some members of WWF Japan were apparently hesitant about publishing the article, saying it was "political," but added that it is the "mission of the WWF to stress things that are scientifically unusual."

The Nagara River is the only undammed river on the main Japanese island of Honshu and spills over its banks when typhoons drive sea water up the river and heavy rains rush down.

**Fisheries Agency Plans Cuts in Trawl-net Fishing**  
*OW2111134091 Tokyo KYODO in English 1257 GMT 21 Nov 91*

[Text] Tokyo, Nov. 21 KYODO—Japan will cut more than 80 percent of its trawling vessels in the Bering Sea within three years, the Fisheries Agency announced Thursday.

The agency will offer 250-410 million yen subsidies per vessel to those who will lose their jobs. Currently, 81 trawl-net vessels are operating, agency officials said. The agency estimated the bailout will cost about 20 billion yen in the three years.

The 1990 catch in the Bering Sea was around 890,000 tons, with Japan's share at 420,000 tons. Japan's fishing haul, however, declined to about 120,000 tons, out of 260,000 tons in the total catches in the water in the three quarters of this year, due to a decrease in fish numbers.

A meeting that ended Wednesday in Washington on Bering Sea fishing saw the Soviet Union and the United States, who called for total suspension, in dispute with Japan, China, South Korea, and Poland, who urged only restrictions, according to the agency officials.

**Industries Face Recycling Cost Issue**  
*Tokyo KYODO in English 0326 GMT 23 Nov 91*

[By Rieko Saito]

[Text] Tokyo, Nov. 23 KYODO—With enactment last month of a new recycling law, Japanese industries have launched various projects to improve their "resource reutilization." But a key question remains unanswered: who ultimately is going to pay these "recycling costs?"

Costs are mounting for the labor-intensive work of collecting, sorting, and dismantling materials to be recycled. And industry is looking at even bigger bills to build new recycling facilities and develop more sophisticated technologies to meet the goals of the new recycling law.

But rising even faster are the mountains of garbage the new law is meant to reduce. The environment agency predicts that at the present rate of increase, Japan will be disposing of 19.5 percent more waste by the turn of the century, just eight years away.

As 85 percent is industrial waste, the Japanese Government enacted on October 25 an ambitious new recycling law, which sets industry-by-industry goals for recycling.

The law is unique in that it takes a wholistic view of the problem and aims at fostering a wholistic solution. Among other things it encourages industry to consider the recyclability of a product right from the design stage by considering how it can be recycled afterward.

Japanese industry is rushing to meet the tough requirements of new law by building recycling centers, studying new recycling technologies, and rethinking the making of a vast array of products with a view toward making them easier to "deconstruct."

Leading automakers including Toyota Motor Corp., Nissan Motor Co., and Honda Motor Co. have started reutilizing car bumpers made of polypropylene, a type of plastic.

According to a Nissan public relations official, there are already established recycling routes for about 75 percent of a used car's components.

The primary task now is how to recycle the remaining 25 percent, much of which is currently shredded and disposed of or incinerated.

Plastic bumpers account for a large portion of that remaining 25 percent but until now there has been a problem recycling such parts.

"The key is how to remove paint from a bumper because if paint remains, the quality of the recycled plastic is considerably reduced," according to the Nissan official.

So Nissan has developed a chemical method for removing paint almost completely and is studying bumper design changes to make them easier to dismantle.

But this Nissan official points to the relatively high cost, and like others aware of the costs of recycling, wonders whether the public is ready to join in footing the bill.

Mitsuaki Sashida, an environmental technology researcher at Japan Research Institute Ltd., notes that recycling bumpers will reduce by 3 percent that 25 percent of an automobile otherwise destined to become shredder dust.

"Currently an estimated 100 tons of shredder dust are disposed of in landfill sites across the nation each year," says Sashida. "For environment conservation, it's better to burn the dust. But burning one ton of shredder dust cost about 50,000 yen, whereas simply dumping the dust costs only around 15,000 yen in city areas, and 2,000 yen or less in rural areas."

A more effective way to reduce shredder dust would be to develop a cheaper incineration method, says Sashida, who notes researchers are also investigating ways to recover nonferrous metals from the dust.

In the construction industry, which is obligated under the new law to use more recycled materials in constructing new buildings, 89 contractors, including such leading firms as Shimizu Corp., Taisei Corp., and Kajima Corp., have established a joint venture recycling business.

But Tokyo-based East Japan Environment Center (EJEC), with a capital of 495 million yen, has encountered problems in pursuing its plan to build seven recycling factories around the Tokyo metropolitan area.

"We have the technology and enough funds for the project but cannot buy adequate land for these recycling factories," said Mamoru Kondo, EJEC's public relations department chief.

"We plan to build a completely enclosed factory on at least 10,000 square meters of land. All processes will be done inside (in a way) so no smell or noise will bother people

around. We can even supply heat produced in the recycling process to the local area," explains Kondo.

Yet it has been difficult to find suitable sites.

When local residents learn that a recycling processing factory may be built around the corner, they often rise up in opposition, Kondo says.

Moreover, a growing number of cities and towns have adopted regulations prohibiting the importation of waste from other areas, Kondo notes.

Stronger promotion of public awareness by administrative authorities may be necessary, Kondo concludes.

Greater public cooperation is needed by more labor-dependent recycling businesses as well, such as of those handling soft drink cans, glass beer bottles, paper, and other bulky commodities.

Yoshio Kudo, a section chief at Sinryo Aluminum Can Sales Co., says the can recycling business is becoming unprofitable due to rising labor and distribution costs, and the high cost of land needed for storage sites.

An increasing number of scrap and recycling business operators are quitting because they can no longer turn a profit, Kudo says.

One solution could be the sort of can-collecting-volunteerism engaged in this summer by a group of senior citizens in Arakawa Ward, downtown Tokyo.

Through their effort the number of cans collected in the area doubled and tripled, reaching more than six tons a month.

Takashi Ikuta, a researcher at the Institute of Research and Consulting Inc., affiliated to the Long-Term Credit Bank of Japan, said companies are geared to be active participants in the recycling-oriented society. If they fail to be, it will harm their corporate reputation.

Under the law, authorities will order companies to submit detailed reports when they judge companies' recycling activities are inadequate and will give "advice" on how to improve.

However, there is the limit in companies' efforts, Ikuta said, who noted that society as a whole must cooperate.

### **Sumitomo Starts Reforestation Project in Indonesia**

*OW2811131791 Tokyo KYODO in English 1210 GMT 28 Nov 91*

[Text] Tokyo, Nov. 28 KYODO—Sumitomo Forestry Co. announced Thursday it has launched an experimental reforestation project in east Kalimantan in the hope of restoring tropical forests in the state.

This is the second tropical forest restoration project to be started by a Japanese enterprise. The first was by Mitsubishi Corp. in Sarawak, Malaysia.

Under the project, about 100 hectares of land at Sebulu in the southern part of east Kalimantan will be secured for experimental reforestation, Sumitomo officials said.

The officials said that since reforestation of Lauan trees by planting seeds is considered very difficult, Sumitomo will attempt to secure Lauan saplings by means of tissue culture technology.

They also said research will be conducted to develop a suitable compost using microorganisms.

The officials said the company will invest about 50 million yen in the project annually over the next five years. If everything goes well, the reforested ground will eventually be expanded to 3,000 hectares, they said.

Kazuo Onishi, president of Sumitomo Forestry, said that since his company has so far imported large amounts of logs and lumber from the district, it will do whatever it can to restore tropical forests there through technological cooperation.

## **SOUTH KOREA**

### **Opposition to Nuclear Waste Disposal Site Grows**

*SK0911024291 Seoul THE KOREA HERALD in English 9 Nov 91 p 3*

[Text] The government's plan to start construction of the country's first nuclear waste disposal site by early 1992 is likely to be delayed because of mounting public opposition.

Public objection to the plan is so stiff that the Science and Technology Ministry in charge of the project has refused to make public the 33 areas which it selected as the candidate sites through its recent preliminary geological survey, for fear of protests from the residents.

Any slight suggestion that the disposal facility might be built in a certain area is prone to trigger violent protest by residents in the area, the ministry officials said.

In the latest case, hundreds of inhabitants of the eastern coastal town of Kosung, Kangwon [Province], took to the streets in mid-September after word circulated that the facility might be located in the area.

Though popular opposition remains strong, the government can not afford to further postpone construction of the disposal site which will permanently keep low- and medium-level nuclear waste and temporarily keep such high-level nuclear waste as spent nuclear fuel.

Thus far, all nuclear waste has been kept at temporary storage sites at each of the country's nine nuclear power plants.

Construction of the permanent disposal site should begin by early 1992 to see that it will be dedicated by 1996 when the temporary storage facilities at the nuclear plants are expected to reach their capacity, according to the ministry.

The planned disposal facility will be capable of storing one million drums of low- and medium-level nuclear waste, an

amount equivalent to the nuclear waste discharge from the country's nuclear power plants for the next 40 years.

In addition to this, the disposal site will have a temporary storage facility capable of keeping 3,000 tons of spent nuclear fuel.

The spent fuel will be kept there until a new processing technique, now under study, which will not violate the nuclear nonproliferation treaty, is completed, the ministry officials said.

The government may be looking to the days when the country will be allowed to reprocess the spent fuel using conventional technology which can be used to enrich plutonium and uranium for production of nuclear weapons.

The ministry officials, however, flatly denied such a possibility, saying that the government has no intention to own a reprocessing facility, but also is not allowed to do so.

They warned that once the country starts the program, all of the nation's nuclear power plants will have to be halted because the United States will immediately stop supply of nuclear fuel.

As the deadline for construction of the disposal facility approaches, the government is intensifying its publicity campaign about the safety of nuclear energy and nuclear energy's vital contribution to the country's economy.

Still, popular reception of nuclear energy remains cold, and people fear that the disposal sites will come to their neighborhood.

Hoping to find a breakthrough, Minister Kim offered ample financial and other rewards for the area who plays host to the disposal plant in September.

By Tuesday's deadline, 41 towns and islands applied, the ministry said.

But it is still uncertain whether the areas which applied had done so based on popular consensus.

The ministry's refusal to make public the names of the areas suggests that many of the areas might have made the applications without popular consensus.

Minister Kim had offered to carry out regional development programs such as hospitals, schools and roads, in addition to an ample financial reward for the area which is selected as the host to the disposal site.

There seems to be enough reason why people do not want a disposal site at their doorsteps.

Understandably, the chief concern of the people is the possibility of nuclear hazard.

The second biggest concern is that if the disposal site comes to their areas, land prices will plummet or at least will not rise as fast as in other areas.

Low- and medium-level radioactive waste can pose health hazards to human beings for up to 300 years, according to local nuclear scholars, only if it is not properly disposed.

However, the ministry officials avowed that the nuclear disposal sites to be built in the country will be totally free from health hazards and will become the safest and most exemplary facilities in the world.

On the type of planned disposal site, the government is favoring building tunnels below sea level in or near coastal areas.

"Burned" by the Anmyon Island incident last November as one ministry official puts it, the government, however urgent the disposal project may be, is unlikely to push ahead with the project without consent from the residents involved.

### **Government To Commercialize CFC Substitutes by 1996**

*SK1811072791 Seoul YONHAP in English 0516 GMT 18 Nov 91*

[Text] Seoul, Nov. 18 (YONHAP)—The Government will spend 10.7 billion won to commercialize four substitutes for chlorofluorocarbons (CFCs) by the end of 1995 in cooperation with private enterprises, the Trade and Industry Ministry said Monday.

This would prepare Korea for full membership of the Montreal Protocol early next year, a spokesman for the Ministry's freon gas substitutes development project said.

Of the total, the Ministry will put up 2 billion won, the science and technology Ministry, 4.8 billion won, and the Korea General Chemical Corp. and Ulsan Chemical Co., 3.9 billion won.

The Ministry has selected HCFC-141B/142B and HCFC-123 as replacements for CFC-11 and CFC-113, which are currently used as a blowing agent and a detergent, respectively. It chose HFC-134A for the coolant CFC-12, and HFC-152A for the foaming and cooling agent CFC-12.

Drawings for a HCFC-141B/142B production plant will be ready by the end of next year and the plant itself by the end of 1994, the spokesman said.

Korea can save more than 100 million U.S. dollars on imports of CFC replacements if the substitutes are developed as planned, he predicted.

The Montreal Protocol requires that all countries cut the use of CFCs and halon gas, which destroy the earth's ozone-layer, 50 percent by 1995, 85 percent by 1997 and 100 percent by the year 2000.

### **Ministry Reveals Plan To Lower Pollution Levels in Rivers**

*SK1911075691 Seoul YONHAP in English 0702 GMT 19 Nov 91*

[Text] Seoul, Nov. 19 (YONHAP)—Nearly 3 trillion won will be spent on the Han River and three other major water resources over the next five years, Environment Ministry officials said Tuesday.

The daily volume of pollutants entering the Han, the source of potable water for more than 10 million people,

will be reduced to 333 tons a day in 1996, the officials said. Without action, it would be 1,138 tons a day.

Pollutants contaminating the Nakdong River will be cut from 483 tons to 135 tons a day, the Kum River from 212 tons to 58 tons and the Yongsan River from 121 tons to 51 tons, they said.

Under a five-year plan costing 2.9 trillion won, 157 sewage disposal plants will be built in the basin of the four rivers along with 61 nightsoil disposal plants and 48 plants treating waste water from livestock farms.

When all these facilities go into operation, sewage disposal will go up to 65 percent of the total from the present 31 percent and 100 percent of nightsoil will be treated, the officials said.

To improve the quality of water resources nationwide, the environment preservation law and other pertinent laws would be revised next year to lower the levels of biochemical oxygen demand (bod) and chemical oxygen demand (cod) by an average 40 percent, they said.

Water sources fall into several categories and are subject to different degrees of contamination, and purification efforts will be made to expand "clean" water sources.

In "clean" water sources receiving 3,000 cubic meters or more of liquid waste a day, the tolerable BOD and COD levels will be reduced from the current 50 milligrams to 30 milligrams per litre. In waters where the daily volume stands below 3,000 cubic meters, the BOD and COD levels will be set at 40 milligrams against the present 50 milligrams.

Establishing fresh water farms in lakes will be banned and ceilings will be set on the use of chemicals and phosphorus content in animal feeds to fundamentally restrict nitrogen and phosphorus, the major causes of plankton multiplication.

For sewage disposal plants in Ansan, Chonju, Taejon and five other cities, COD levels will be set. At present, only BOD is measured.

If the five-year plan is implemented on schedule, BOD levels in the upper reaches of the four rivers will drop to 1.0 PPM from current levels ranging from 1.6 ppm to 2.7 PPM, they said.

## MALAYSIA

### Japanese Project To Create Sustainable Tropical Forest

OW1911114891 Tokyo KYODO in English 1038 GMT 19 Nov 91

[Text] Tokyo, Nov. 19 KYODO—Japan will launch a five-year afforestation project in Malaysia next month with a view to creating a tropical forest which can be sustained while producing timber to benefit the local economy, Forestry Agency officials said Tuesday.

The agency and the Japan International Cooperation Agency (JICA) will send a joint team of six afforestation

experts to the central Malay Peninsula in mid-December to work on the 600 million yen project, the officials said.

Under the agency's plan, the experts will first plant very fast growing trees on a 1,000-hectare site. Some of these will be cut down after two years and replaced with slower-growing trees such as lauan.

In all, 30 kinds of trees will be planted to check the speed of growth, and the cutting and planting cycle repeated.

In about 100 years, the site should become a forest with a variety of trees which can be cut selectively for timber to benefit the local economy, while the forest is maintained by planting new trees, officials said.

If the project succeeds, it will give rise to a new method of afforestation, which has so far been done mostly by planting only fast-growing trees all at once, they said.

Afforestation with nothing but fast-growing trees is comparatively easy and low-cost because it enables lumber production within a short period of time, but it risks bringing an upsurge in destructive insects and natural fires because forests consisting of a single kind of trees tend to have poor soil and become dry, the forestry officials said.

### Mahathir Sets Condition on Attending Rio-92 Conference

BK2011044091 Kuala Lumpur BERNAMA in English 0337 GMT 20 Nov 91

[Text] Kuala Lumpur, Nov 20 (OANA/BERNAMA)—Malaysia may attend next year's environment summit in Brazil if the two meetings preceeding it come up with positive resolutions on the respective roles of north and south countries, Prime Minister Dr. Mahathir Mohamed said Tuesday.

He said there would be two meetings prior to the summit, the preparatory meeting and the meeting of developing countries.

Malaysia would first assess the outcome of both meetings before deciding whether to attend or not, he said.

"If their outcome stresses on what the rich, the poor, the small and the big countries should do, then we way decide to attend," he said.

The prime minister was speaking to reporters after addressing the 1991 United Nations Malaysia Association (UNMA) forum here.

He said Malaysia would make consideration if it found that the summit sought how all parties should act to reduce environmental pollution.

"But if eventually we realise that it is going to let only the poor countries bear the burden of looking after the environment, then we might as well don't attend," he said. [sentence as received]

He said even before this Malaysia has said it might not attend the Rio de Janeiro summit if it only focus on developing countries, environmental pollution and logging activities.[sentence as received]

As such Malaysia would attend the two meetings preceeding the summit and was not planning to boycott them, said Dr. Mahathir.

Reporters also asked the prime minister on issues he would raise when addressing the G15 summit in Caracas, Venezuela from Nov 27 to 29 Nov.

He said he would, among other things, touch on North-South relations, problems faced by Asian countries, and general South-South issues.

To another question, the prime minister said ASEAN member countries have not officially discussed Vietnam and Cambodia's participation in the regional grouping.

So far, no application has been received, he said.

## TAIWAN

### Government Restricts CFC Use; Seeks To Join Montreal Protocol

OW1211082991 Taipei CNA in English 0755 GMT  
12 Nov 91

[Text] Taipei, November 12 (CNA)—The Environmental Protection Administration (EPA) will gradually restrict and eventually prohibit the domestic use of chlorofluorocarbons (CFCs) since the chemicals are detrimental to the earth's ozone layer, a ranking official said Monday.

EPA Director Jaw Shao-kang made his promise while responding to an interpellation by legislator Lin Chih-chia at a Legislative Yuan committee meeting. Lin blamed the cabinet-level agency for having allowed a CFC manufacturer in Kaohsiung to expand production.

Jaw denied that he had approved the application. The legislator-turned administrator said it might have been approved before he assumed his current post. He promised to look into the case.

Jaw stressed that the Republic of China is seeking to join the Montreal Protocol, an 1987 agreement signed by 37 countries to restrict worldwide use of CFCs in an effort to protect global ecology. The country is therefore obligated to abide by the multilateral accord to reduce CFC consumption as much as possible, he explained.

The current domestic standards for CFC consumption were set in 1986, Jaw reported. To facilitate the country's signing of the Montreal Protocol, he said, EPA will further limit CFC use in accordance with the pact.

## THAILAND

### Study Shows 'Steady Depletion' of Forest Cover in Parks, Reserves

BK1311034591 Bangkok BANGKOK POST in English  
13 Nov 91 p 6

[Text] The country's protected forests, including wildlife sanctuaries, are seriously threatened by human encroachment, according to a recently-released report.

The "Study of Conservation Forest Area Demarcation, Protection and Occupancy in Thailand," conducted by forestry officials and researchers and concluded in June this year, shows that national parks, wildlife sanctuaries and forest reserves are being steadily depleted of forest cover due to encroachment.

For instance, 17 percent of Doi Inthanon National Park in Chiang Mai has been illegal occupied by settlers.

The severity of the problem at Doi Inthanon has prompted the International Union for Conservation of Nature Commission on Parks and Protected Areas (IUCN) to list the park as one of the most threatened.

The IUCN alleges that ethnic tribal population growth and opium cultivation have resulted in the destruction of 15 percent of the park, and that the remaining forest is threatened by the heavy use of chemicals for agriculture.

Other threatened sites include:

—Doi Chiang Dao wildlife sanctuary in Chiang Mai, where about 10 percent of the forest cover has been depleted.

—Kaeng Tana national park in Ubon Ratchathani, where 80 percent remains intact.

—Phu Khieo wildlife sanctuary in Chaiyaphum, where 10 percent of the forest has been depleted and forest fires have caused extensive damage to the natural regeneration process.

—Khao Laung National Park in Nakhon Si Thammarat, where 20 percent has been cleared and occupied.

—Khao Banthat Wildlife Sanctuary, which straddles Satun and Phatthalung provinces.

—Phang-nga National Park, where 15 percent has been illegally occupied.

—Khao Yai National Park, where eight percent has been occupied.

—Khao Phu Khao Ya National Park, where 30 percent of the forest cover has been destroyed.

## VIETNAM

### Sweden To Give \$8.2 Million for Environmental Projects

BK1711154991 Hanoi VNA in English 1504 GMT  
17 Nov 91

[Text] Hanoi VNA November 17—The Swedish Government has decided to finance USD [U.S. dollars] 8.2 million for two environmental protection projects at the United Pulp and Paper Enterprises of Dong Nai (South Vietnam) and Vinh Phu (North Vietnam). The sum, given through the Swedish International Development Authority (SIDA), is not included in Sweden's annual aid to Vietnam.

The agreements on environmental protection for Dong Nai and Vinh Phu Enterprises were signed on November 19, 1990 and November 14, 1991 respectively.



## REGIONAL AFFAIRS

**Ecologist Analyzes Dispute Over Bos-Nagymaros Power Station**

*AU1811144591 Budapest MAGYAR NEMZET  
in Hungarian 15 Nov 91 p 11*

[Interview with Ms. Adrienn Hajosy, ecologist and member of an ad hoc academic committee dealing with the Bos-Nagymaros hydroelectric power station, by Marta Sarvari; place and date not given: "Agreement Only on a Professional Basis"]

[Excerpts] If the comparison were not so impossible, we could say that the Danube affair is starting to resemble a sea serpent, a never-ending story. Both Hungary and the CSFR stress the importance of an agreement, but in the meantime, no agreement is reached and we are faced with a war of statements instead. The public is growing bored with this to-ing and fro-ing and it does not understand why the negotiating parties cannot find a solution to this problem, which really cannot be called historic if we consider the fact that much more important treaties have been canceled in our region—let us just mention the Warsaw Pact. [passage omitted]

[Sarvari] Why can this unfortunate affair not be closed in a reassuring way?

[Hajosy] When listing other canceled treaties, we could also mention CEMA, because CEMA does not exist anymore. Consequently, the question is justified: Why is it only the dam agreement that cannot be canceled? A solution is only possible if it is founded on a professional basis and if ecological viewpoints are placed at the forefront. In 1977, when the Budapest agreement was signed, the signatories did not outline how and under what conditions the agreement could be canceled in the event of certain undesirable developments. Fortunately, in the meantime, the world has increasingly come to appreciate ecological values, as several international agreements show. Just to mention one such agreement: The Rome agreement approved in 1985 stipulates that environmental values have to be placed at the forefront in the countries of the signatory parties.

[Sarvari] The Hungarian Government's viewpoint—to abandon the Nagymaros power station and rehabilitate the environment—falls in line with that principle. Yet nothing is happening in practice.

[Hajosy] That is because there are still some people whose interests do not lie in a solution. These people have remained in their old positions, the change of regime has not affected them. [passage omitted]

[Sarvari] Can these people be called to account in the end?!

[Hajosy] If this affair is dragged on for a long time—and that is in their interest—then it will be very difficult to prove their responsibility for the squandered billions. [passage omitted]

The postponing of things is backfiring on us. At the beginning of 1990, following the velvet revolution, there

was a favorable moment for both sides. One of the first steps taken by the new Slovak Government was to halt plans concerning a unilateral diversion [of the Danube], plans that had already been initiated in the autumn of 1989. The Slovak Government created expert committees to examine certain issues. Interestingly enough, these committees said the same things as our committees; in fact, on several occasions, their assessments were more forceful than ours.

We should not forget, either, that the population in Slovakia does not want the power station. The demonstrations this summer proved this—demonstrations with the equal participation of Slovaks, ethnic Hungarians in Slovakia, and Czechs. [passage omitted]

[Sarvari] Will it be possible to break out of the current deadlock in the foreseeable future?

[Hajosy] We hope so. That is what Minister without Portfolio Ferenc Madl is trying to achieve by once again inviting Jan Carnogursky, the leader of the CSFR negotiating delegation, to discuss Bos-Nagymaros investments at a government level. Jeno Boross, Hungary's general consul to Bratislava, gave Carnogursky this letter of invitation a few days ago.

## BULGARIA

**Deputy Environment Minister Explains Ecological Conflict With Romania**

*AU0811164391 Sofia DUMA in Bulgarian 4 Nov 91 pp 1,5*

[Interview with Deputy Environment Minister Valentin Bosevski by Tanya Kirkova and Lyubomir Rozenshtayn; place and date not given: "We Need an Ecological Policy, Rather Than a Politicized Ecology"]

[Excerpt] [DUMA] Mr. Bosevski, in the first place let us ask you what has happened to the Bulgarian-Romanian ecological convention that was supposed to be signed at the end of October 1991? The citizens of Ruse relied on it with all their hopes after so many talks and so many promises that the two sides would finally assume a legal commitment on jointly settling their ecological problems...

[Bosevski] The resignation of Mr. Roman's cabinet and the establishment of a new government in Romania somewhat confused us because we had already agreed on signing the convention. Now the Romanian environment minister, Mr. Pop, has been replaced by Professor Marcianu Bleahu. We sent a letter to him and were pleased by his prompt reaction. He answered that he would arrive in Sofia to sign the convention and we also fixed the date—8 November 1991.

[DUMA] Nevertheless, an Ecorock protest festival has been scheduled to take place in Ruse on the evening before, namely on 7 November 1991....

[Bosevski] The Romanian side has already expressed concern about this event. We are also disturbed by the coincidence of the dates, but I hope that people in

Romania will understand that the festival has nothing in common with Mr. Bleahu's forthcoming visit. Naturally, the public is perfectly entitled to react spontaneously within the limits of the law, although I am not convinced that such actions are likely to contribute to an alleviation of the sociopsychological stress.

[DUMA] What is the source of the stress?

[Bosevski] The Ruse-Giurgiu problem is a peculiar ecological phenomenon in our political life. The fact that the solution of the problem was postponed for such a long time is the main cause of the Ruse population's tragedy, which sometimes even distorts a realistic assessment of the situation in the area. This is natural and we cannot blame the population for its sometimes exaggerated reactions. However, I would prefer that the Ruse-Giurgiu problem did not become a symbol of ecological chauvinism.

In this respect, I would oppose the policy of ultimatums. The policy of ultimatums is doomed in the ecological sphere. We are talking about two sovereign states and about large industrial cities. We cannot demand that the problems be resolved in a formal manner by imposing ultimatums. We must search for mechanisms that can achieve a coordination of interests on an equal basis. [passage omitted].

#### **New Environment Minister Plans Ecological Taxes**

AU2011144291 Sofia TRUD in Bulgarian  
15 Nov 91 pp 1, 3

[Interview with Environment Minister Valentin Vasilev by Nikolay Buzin; place and date not given: "I Will Introduce Taxes on Using the Environment!"]

[Text] It is logical that my first question to the minister of the environment is of specific interest to TRUD: Does Mr. Vasilev expect conflicts on the subject of "ecological unemployment," and is there likely to be any trouble with the trade unions?

"It is impossible to avoid such unemployment," the minister replied, "that is, one cannot fail to demand the closure of production capacities or activities that cause damage to the environment." He added that, at the moment, no one in the country has exact figures on the numbers made unemployed for ecological reasons; the figures are simply mixed in with others. However, everything depends on how far he succeeds in establishing cooperation with Minister Pushkarov in introducing strict control over companies infringing the Law on Preserving the Environment.

[Buzin] Are you not worried about the present blatant politicization of national ecological problems? The Kozloduy Nuclear Power Plant, the Plovdiv Zinc Combine, Sredonogorie, and the Ruse-Giurgiu situation are all events that keep both people and the political forces in a state of tension....

[Vasilev] I do not believe that there is any true politicization, i.e. confrontation between the opposition and the government, in the ecological field. They are simply

responsible for the ecological disasters so far, and now they will support me. As regards the rock festival in Ruse, no one can prohibit people from expressing their anguish. No such force exists!

[Buzin] Are you pleased with the newly adopted Law on Preserving the Environment?

[Vasilev] I asked various groups of experts, as well as specialists from the most varied departments, to present their critical comments on the law. In my view, it contains many shortcomings: There are many general references to penalties, but the law does not define the mechanism for allocating the money received from fines. My primary aim is to create financial mechanisms for penalizing gross offenses against protecting the air, water, and soil. I will introduce taxes on discharges into effluent waters and the air, and even on using nature! The money obtained will be used not for pseudoscientific studies or cruises on the Danube, but for completing the construction of the major effluent treatment projects that have been started, for example.

[Buzin] Large amounts of aid for ecological purposes is starting to arrive from abroad....

[Vasilev] Yes, but so far this aid has appeared in a chaotic manner. We will quickly draw up a list of priority projects, for which we will seek special aid.

[Buzin] What about the urgent Ruse-Giurgiu problem?

[Vasilev] According to unofficial information, we received an assurance in Brussels that a minister will arrive from Romania to sign the "postponed" convention. A meeting of Balkan ecological experts ended today, and they assure us that a general ecological convention will be signed within a year. In addition, today the government decided that Bulgaria would sign the protocol to the 1979 European convention on limiting emissions of organic compounds into the atmosphere. Thus, as well as combating "minor offenses," we will also pursue an integrated policy on settling global ecological problems. What is important is that I will use the services of all competent specialists, irrespective of the previous political confrontation....

#### **Kozloduy Safety Official Denies Radioactivity in Danube**

AU2711083991 Sofia BTA in English 2028 GMT  
26 Nov 91

[Text] Kozloduy, November 26 (BTA)—Mr. Yordan Yordanov, chief of the Nuclear Safety Department at the Kozloduy Nuclear Power Plant, denied reports about hot radioactive particles in the River Danube.

"It is practically impossible to discharge such waste into the river," Mr. Yordanov said on national radio today. According to him, this was confirmed by the international commission, including Romanian experts. The final readings show that the discharges from the nuclear plant cannot contaminate the Danube with radioactive particles.

Mr. Yordanov's statement was confirmed by Mr. Yanko Yanev, chairman of the National Committee on Peaceful

Atomic Energy Uses. Mr. Yanev described the allegations as "unsubstantiated," adding that "hot particles in the Danube could result only from melting a reactor or from atomizing it."

It was Romania that reported the contamination of the Danube with hot radioactive particles. The nuclear news network with its head office in Berne, Switzerland, approached the competent Bulgarian authorities with an enquiry in this connection early today.

## HUNGARY

### New Environmental Protection Bill Looks to West European Norms

*AU1311130991 Budapest MAGYAR HIRLAP  
in Hungarian 12 Nov 91 p 5*

[Report by Zoltan Otvos: "Environmental Protection Bill Under Preparation—Western Norms in Eastern Environment"]

[Text] A dozen environmental experts from the EC member states arrived in Budapest last weekend to familiarize themselves with the concept of Hungary's environmental protection bill, and to compare this to the relevant laws in their own countries. On 9 November, the experts held a full-day roundtable negotiation with representatives from our political parties. Andras Sajo, the leader of the working group that is in charge of drafting a bill on environmental protection, provided information on the current state of the plan.

Andras Sajo believes that one of the important virtues of the plan is that it enables us to reach West European norms without any hitches. In its present form, the plan has an option according to which we take on the EC's norms as far as the aims laid down in the law are concerned (if these aims can be defined through concrete facts). Naturally, there may be cases where Hungary needs stricter regulations than the countries of Western Europe. However, the starting point was that, if possible, we should carry out the aims of the law in the same way that the EC has done. One of the reasons why this plan is interesting is because there has never really been an example of people wanting to adapt to norms that do not form part of their own legal system. To give an analogous example, Hungary is not a member of the international rugby federation, but we can say that rugby in Hungary is played according to the rules of the international federation, unless there are specific reasons why the rules need to be changed (if we do not have a large enough pitch, for example). The bill sends out a signal that our country, which wants to join the EC, really is prepared to live up to the EC's expectations. This is extremely important because it may well be that in the near future, the EC will only provide financial assistance to projects whose realization falls in line with EC environmental protection regulations.

There are certain expectations concerning Hungary's pollution levels, but how can a run-down economy be called to account?—environmental experts often ask. Andras Sajo believes that if Parliament approves the environmental

protection bill, this will not mean a sudden and overnight introduction of EC norms; these norms will be introduced following a detailed and therefore rather complicated process. One of the law's basic principles is that we indisputably need a certain amount of time for preparation. The minimum is two years, but the introduction of these norms could take longer in certain cases. Naturally, these norms will primarily apply to new institutions because older ones need a longer time to adjust. There are also plans to create a fund for environmental protection, and if this works, it could help subsidize technological modifications.

The environmental fund that exists today will be replaced by a fund with a new construction, and its revenues will radically increase with the abolition of current exceptions. The distribution system will also change in that it will no longer be dealt with centrally. Environmental protection representatives will participate in the management of the fund's board, thereby increasing society's control. A significant proportion of the money will be handled by banks and used for refinancing. The money will be given to those who make environmental protection investments, but only if their plans are financially viable.

The environmental protection law that is still in force today does not deal with the executive aspect of the issue. Andras Sajo believes that this should definitely be changed. He hopes that in this changed political situation, the environmental protection authorities will take their responsibilities more seriously than before. However, a law cannot be built on hopes alone; the law's implementation needs to be supervised. It took three years to draft the German skeleton law on environmental protection, but Sajo believes that Hungary does not have that kind of time on its hands. In this present unregulated situation, an imperfect law is still better than a new environmental law that strives for protection but arrives late.

## YUGOSLAVIA

### Air Force Command Warns of Ecological Danger From Rocket Fuel Explosions

*LD0811135391 Belgrade TANJUG in English 1225 GMT  
8 Nov 91*

[Text] Belgrade, Nov 8 (TANJUG)—The Command of the Yugoslav Air Force warned today that repeated attacks by Croatian armed formations on the 'armed formations of artillery and rocket units of the Air Force and Anti-Aircraft Defence (GV-PVO) in the territory of the Republic of Croatia are daily increasing the possibility of provoking an ecological catastrophe of unseen proportions.'

In its announcement today, the GV-PVO Command cautions that the bio-chemical effects of explosions in the arsenals of rocket fuels concentrated in the territory of this republic would be tantamount to the output of the most destructive chemical arms known to mankind today. '[quotation mark as received]

The announcement, signed also by the Department for Atomic- Biological-Chemical (ABH) Defence and the medical department of the Federal National Defence Secretariat (SSNO), points out that 'the resolve not to permit rocket bases be captured may be seen in the fact that mines have been planted to stocks of all unusable rocket missiles and fuels,' while 'a certain number of missiles are on launching pads ready to attack selected targets on land.'

The announcement also says, 'Ustashi paramilitary formations have been on time warned about these activities. Suicidal onslaughts by top Ustashi leaders on PVO artillery-rocket units are now imperilling not only themselves but also peoples in a broader area of central Europe.

'The effects of poisonous gases released in explosions, depending on wind directions and velocities, may spread

on an area of anywhere between 890 and 1520 square kilometres.'

Experts in ABH arms and SSNO medical service claim that rocket fuel explosions are fatal, because of toxic nitric-acid-based vapours.

In such explosions there are serious chemical-induced burns, the respiratory organs and eyes are damaged, and the central nervous system paralyzed. The effects of vapours last long and cause headaches and spongy gums. They damage the blood, mucous membranes, heart, digestive tract and other organs.

A territory, once exposed to such vapours, for a long time necessarily remains unpopulated, since foods are poisoned and the plant and animal life virtually annihilated, while ground waters are polluted—says the RV-PVO Command in the end of its announcement.

## REGIONAL AFFAIRS

**Conservation of San Juan River Reserve Priority Project for Nicaragua, Costa Rica***92WN0130A Managua LA PRENSA in Spanish  
28 Oct 91 p 4*

[Commentary by Jaime Incer, director of the Nicaraguan Institute for Natural Resources and the Environment]

[Text] At the summit meeting of Central American presidents in Puntarenas last December, the chief executives of Nicaragua and Costa Rica, Violeta Chamorro and Rafael Angel Calderon, signed an agreement for the environmental protection and development of national parks on both sides of the San Juan River for the purposes of conservation, scientific research, and ecological-tourist development. The project will benefit both nations, particularly residents of the border area.

The project was named SI-A-PAZ (Integral System of Protected Areas for Peace) [Yes to Peace]. Its purpose is to develop the Nicaraguan side for the following purposes: scenic restoration and reforestation of the Solentiname Islands; conservation of the rich fauna in the marshy Los Guatusos region on the south shore of Lake Nicaragua; restoration of the historic El Castillo fortress; hydrological recovery of the San Juan River delta; reconstruction of the historic port of San Juan del Norte, and above all, conservation of the Great Indio-Maiz Biological Reserve, which contains the watersheds of both the Indio and Maiz Rivers and extends from the Punta Gorda River on the north to the San Juan River on the south. The project will also implement new models of sustained development in the tropical wetlands adjacent to these Protected Areas.

On the Costa Rican side, SI-A-PAZ calls for improvements in Tortuguero National Park and the Barra de Colorado Forest Life Refuge near the Caribbean, and development of the Cano Negro Refuge in the Upala-Los Chiles area, an ecological prolongation of the marshy Los Guatusos area which begins on the south shore of Lake Nicaragua.

Both presidents agreed to declare SI-A-PAZ their countries' top priority conservation project. This is one of the areas of greatest value and attraction in the Central American isthmus because of its natural beauty, in addition to the historic sites of Lake Nicaragua, the San Juan River, and the old inter-ocean route through this area.

The idea for this magnificent project really began in 1964 during the First Regional Conference on Conservation of the Natural and Cultural Heritage of the Central American Isthmus. However, its interesting potential was at first blocked by ignorance of the area's natural resources, and by the almost total lack of national interest at that time in protecting cultural sites in the San Juan River area.

The situation worsened during the 1970's when the cutting and burning of the forest began. This forest was one of the richest in the continent. These activities polluted the river and its tributaries with thick mud-laden currents coming from the denuded soil trampled by livestock on both sides of the river. The archeological wealth of the Solentiname

Islands was plundered; the heroic El Castillo fortress became a village latrine. The sands of the Arena volcano ended up by blocking up the Nicaraguan branch connecting the main section of the river with the beautiful San Juan del Norte Bay, leaving much of the riverbed without water during the driest season of the year.

During the 1980's a state logging company was allowed to exploit the Sabalos River woodlands. The Sabalos is the San Juan's largest tributary on the Nicaraguan side. At the same time, agricultural cooperatives were destroying the rich woods still remaining on the Santa Cruz tributary for the African palm tree project, which was never finished and was finally abandoned. On the Costa Rican side, livestock expansion into forest soils consumed the last remaining woodlands to accommodate half a cow per hectare. This is an example of the worst waste of land at the expense of the tropical forest richest in species on the entire isthmus.

During the past decade the Solentiname Islands also lost their virgin forests when their native woods were cut and burned for pastureland and to promote extensive livestock breeding, ruining forever their tourism potential.

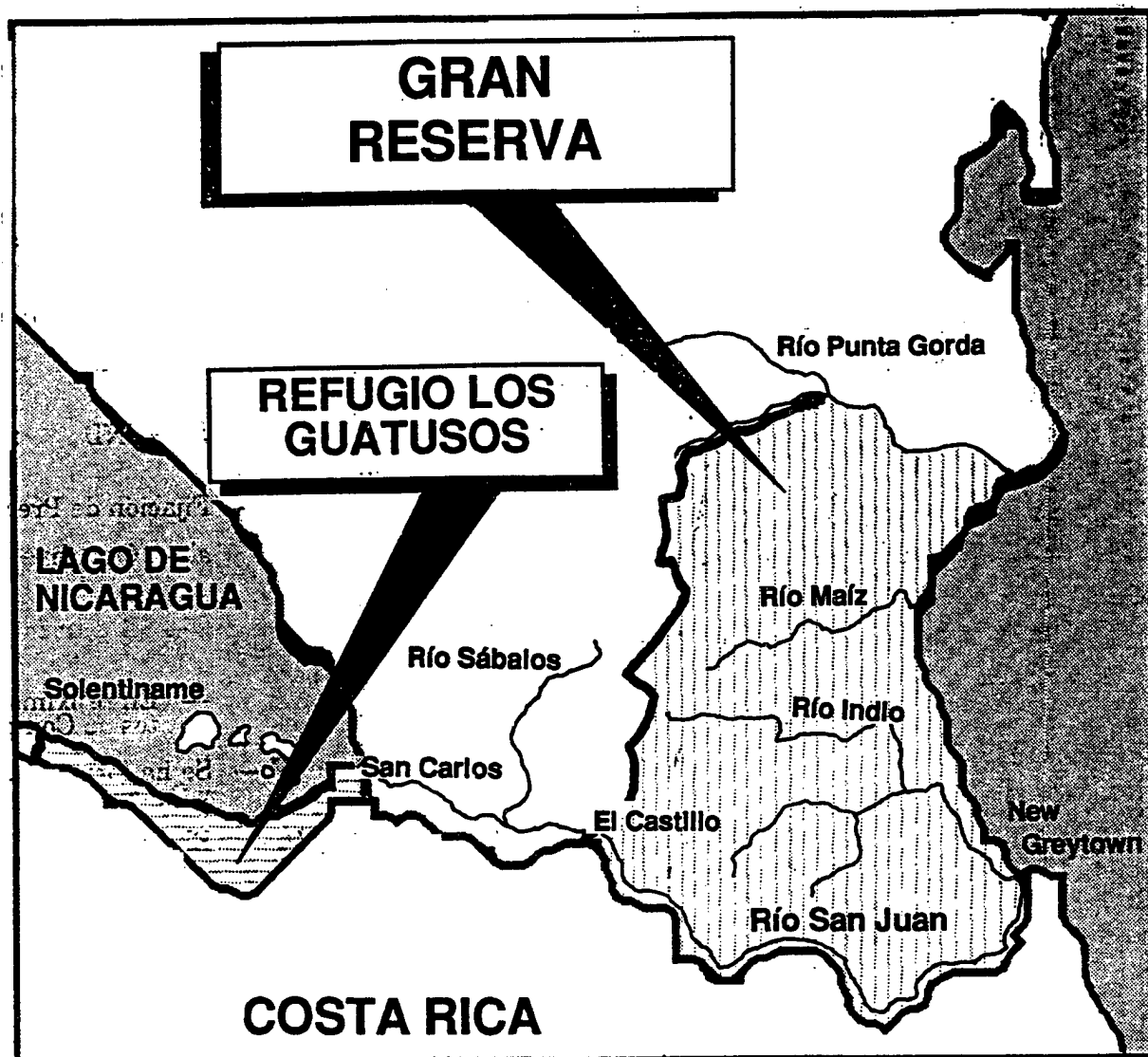
Moreover, in La Inmaculada Fortress next to the El Castillo section of the river, an antiaircraft gun was set up on the ancient fortified towers, thus exposing the oldest colonial military fortification in Central America to eventual destruction by the opposite side during the recent military conflict. Finally, as if that were not enough, what remained of the old victorian center of the San Juan del Norte port was burned by crossfire between the Sandinistas and contras.

So it is easy to understand why the natural and cultural restoration of the San Juan River was impossible, given the prevailing military conditions. It would have been somewhat like trying to set up glassware in the middle of a battleground being trampled by two rampaging rhinos.

Protecting the San Juan River now requires urgent action to conserve the still existing woods in Nicaragua, and it means that Costa Rica, where most of the river drains, must reforest the part of the watershed in its territory. That is the only way it will be possible to slow down the tremendous sedimentation the river is suffering from poor soil management. If such action is not taken, the San Juan delta will continue to be silted up and Nicaragua's future options—dredging, damming or channeling its waters—in order to fully exercise its sovereign rights over these waters will be more expensive or impossible to execute.

If those steps are not taken, sport fishing opportunities, following the migratory routes of sharks, "pejesierras" and shad to Lake Nicaragua will be lost forever, and the eco-tourism options here, now the most exotic area with the greatest potential in Nicaragua, will fade away.

Not only are the two nations most directly affected interested in saving the natural and cultural resources in the San Juan River watershed; the project has also attracted the attention and interest of major international conservation organizations. Friendly governments, including



Sweden, Norway, Holland, Denmark, Spain, England, Austria, and others have expressed an interest in attending the next International Conference of SI-A-PAZ Donors to offer their technical and financial assistance to the project.

SI-A-PAZ's great international popularity is due to the fact that it is designed to achieve three objectives which are very important in Central America at this time. First of all, it promotes peace in an area badly hurt by the recent war. Secondly, it provides valid and sustained options for the economic development of marginal population groups, which since the war have been moving into this area in an irregular manner, dangerously increasing pressures on the river's forest resources. Thirdly, it would protect one of the richest and most fragile ecosystems still remaining in this continent, representing a future gene pool in worldwide demand because of its great biodiversity, something as valuable for the 21st century as petroleum has been during the 20th century.

The SI-A-PAZ project is not the first or the only border conservation project in the isthmus. In fact, as the Central American region is a real biological bridge between two continents, it is full of scientific potential for eco-development. The Trifinio National Park, for example, was established in the Montecristo Mountains where the borders of Guatemala, El Salvador, and Honduras converge. La Amistad [Friendship] National Park encompasses the fog-shrouded forests of the Talamanca Range between Costa Rica and Panama. At the present time Mexico, Guatemala and Belize are cooperating in a major nature, archeological, and tourism project known as the Maya Route, in which the three nations hope to protect and conserve the rich Lacondon and Peten forests, with all their valuable Precolombian monuments.

Only by realizing that economics, like politics, can not be fully justified without taking the environment (the true

science of world survival) into account, can binational projects be carried out with worldwide support. After all, nature always transcends borders, so conservation transcends political systems. Clean water, pure air, and green lands are the most valuable heritage we could leave our children, the Nicaraguan people, in the 21st century.

### **Amazon Region Meeting Calls for Promoting Integration**

*PY0911180291 La Paz Radio Fides Network in Spanish 1100 GMT 9 Nov 91*

[Text] The fourth meeting of foreign ministers of countries that signed the Amazon Cooperation Agreement ended yesterday in Santa Cruz. The ministers drew up a new agenda of meetings to be held in the immediate future. The ministers will meet again in Brasilia in January to prepare for a meeting of region presidents, which will be held in Manaus in February at the invitation of Brazilian President Fernando Collor.

The Manaus summit, which will also be attended by the foreign ministers, is scheduled for 3 and 4 February. Its objective will be to adopt a common position for the UN Conference on Environment and Development [UNCED], which will be held in Rio de Janeiro in June.

In addition, the foreign ministers will endorse the region's common position at debates on climatic changes and biological diversity [biodiversidad] at the fourth meeting of the UNCED preparatory committee, which will be held in New York.

The foreign ministers of the eight Amazon countries, who approved the so-called Declaration of Santa Cruz de la Sierra—with which they closed the meeting—concluded that subregional integration has unquestionably moved forward. They decided to adopt new measures to promote this process. In this regard, a working group will be created to formulate a proposal on institutionally strengthening the Amazon Treaty. Another working group will be created to formulate another proposal on the operation of an Amazon financial institution. The two proposals will be submitted to the upcoming ministerial meetings for study and approval.

Bolivian Foreign Minister Carlos Iturralde, who closed the meeting, said that the financial institution, which will manage funds provided by international agencies and industrialized nations, could be vital for development of the Amazon region.

The fourth ministerial meeting did not reach a consensus on regulations for commercial navigation of Amazon rivers. Only seven countries showed their willingness in this field, while Peru noted that studies should continue. The foreign ministers expressed the hope that the eight countries can reach an agreement on the issue at the next meeting. Navigation regulations will facilitate use of the region's most common means of transportation. It should be noted that rivers are the Amazon region's most efficient means of integration.

Brazilian Acting Foreign Minister [title as heard] Marcos Azambuja stressed that the most important result of the meeting was the decision to act, as of now, as partners in all...

[Begin Azambuja recording, interrupting] The countries that signed the Amazon Cooperation Treaty have now become partners in preparation for the Rio de Janeiro UNCED. It is a new line of cooperation. We will work together during all preparatory stages of the conference so that the viewpoints of Amazon countries can be fully respected at the world conference in June 1992. We will, therefore, adopt a common position on biological diversity, climatic changes, and forests during the preparatory process.

This is a new field of cooperation that has been opened to us. [end recording]

Azambuja added that his country is still interested in buying Bolivian gas for its industries in Sao Paulo, Mato Grosso, and southern Brazil.

## **ARGENTINA**

### **New Law Defines Southern Seas Exploitation**

*PY2211211491 Buenos Aires Radio Nacional Network in Spanish 1500 GMT 22 Nov 91*

[Text] Foreign Minister Guido di Tella held a news conference to announce the promulgation of Law 23978. This law includes the Malvinas, South Georgia, and South Sandwich Islands and reiterates Argentine rights to exploit natural resources in Argentine territorial seas as well as mineral resources, including oil, in the Argentine continental shelf.

Di Tella said the British Government announced that this legislation will allow for seismic prospecting in the area. The Argentine Government, however, does not accept or consent to the jurisdiction that the UK assumes over the area.

Di Tella added that according to the joint declaration signed in Madrid on 7 February 1990, diplomatic representatives of the two governments must meet in London during the first week of December and that discussions will continue in Buenos Aires in early 1992. The purpose of these meetings is to analyze the situation and to consider possible cooperation in all areas.

In sum, the Argentine Government expressed that it appreciates the current state of bilateral relations with the United Kingdom, that such evaluation does not affect Argentina's unrestricted rights over the Malvinas, South Georgia, and South Sandwich Islands, and that it considers the mutual willingness to seek possible cooperation mechanisms in these matters as a positive step forward. This is part of Di Tella's remarks:

[Begin recording] These commissions will analyze cooperation mechanisms to face the question of exploiting resources, mineral exploration, and all possible types of cooperation. Our declaration concludes by saying that the

Argentine Government appreciates the current state of bilateral relations with the United Kingdom, that such an evaluation does not affect Argentina's unrestricted rights over the Malvinas, South Georgia, and South Sandwich Islands, and that it considers the mutual willingness to seek possible cooperation mechanisms in these matters as a positive step forward.

This is the news. Apart from statements confirming the two countries' positions on the issue of sovereignty, which have been mentioned in previous declarations in the United Kingdom as well as in Argentina, what is important and new is the analysis of mechanisms for cooperation in the conflict zone. [end recording]

## BOLIVIA

### Ten-Year Environment Fund Set Up

PY2911143891 La Paz Television Boliviana Network  
in Spanish 0200 GMT 29 Nov 91

[Text] The General Secretariat for the Environment [Secretaria General del Medio Ambiente] will disburse \$2.3 million every year for a 10-year period. This is the result of Bolivian negotiations to reduce certain debts with the United States, negotiations that concluded with an agreement between the two governments within the National Environment Fund [Fondo Nacional Para el Medio Ambiente] of the Americas Initiative

Environment Secretary Gerardo Aguirre will inform us how these funds are to be used.

[Begin recording] These funds will be used to implement our environmental policies and will be used in the following order of priority; the management of natural resources, the control of basins, support for Indian communities, environmental education, and environmental consciousness. In other words, a series of aspects involving certain priorities that must be implemented in the short term.

These funds are earmarked for both nongovernmental and research organizations involved in social development and environmental activities so that the various proposals that they will submit to us can be implemented.

The fund will be managed by an administrative council made up of seven members, four of whom will be from nongovernmental organizations, two representatives of the national government, and one representative of the U.S. Government. [end recording]

## DOMINICAN REPUBLIC

### Forest Fire Losses Exceed Reforestation Rate

92WN0088A Santo Domingo LISTIN DIARIO  
in Spanish 7 Oct 91 p 2

[Article by Matilde Fabian]

[Text] More than 240,000 tareas of forest were destroyed by fire between May of 1990 and May of 1991.

This is more than the total wooded area destroyed by fire in the decade of the 1980s, and it is almost twice the entire

area planted by the forest service in its more than 29 years of existence, Eleuterio Martinez, a forest agronomy engineer, explained.

Martinez said that according to his estimates, no fewer than 5 million pine trees and between 10 and 15 million regenerating pine seedlings fell victim to these disasters. "If we convert this into monetary losses, we would be talking about no less than 900 million pesos, based on the hypothesis that each tree burned down was worth 180 pesos, while the cost of replanting the seedlings for natural regeneration which were destroyed by fire would vary between 80 and 120 million pesos."

He said that the fires in Guaigui, Terrero, Miranda, and Manaclitas were insignificant in comparison to those in Pajon Blanco, Valle Nuevo-Padre Las Casas, Los Frios-San Juan de la Maguana, and Bermudez-El Tetero (Constanza). In those localities, more than 100,000 tareas of forest were destroyed by this phenomenon, which affected the Valle Nuevo Natural Science Preserve and the Jose de Carmen Ramirez and Armando Bermudez National Parks.

Eleuterio Martinez, who has extensive experience in agroforestry practices, explained in a report on forest fires in the Dominican Republic that thousands and thousands of tareas of woodland are destroyed every year by fires.

The fires last season did serious damage to the forest cover which protects the sources or upper basins of the Las Cuevas, Yaquecillo Grande, Yaquecillo Medio, Yaque del Sur, Mijo, San Juan, Yaque del Norte, and Artibonito Rivers, among others. Their reservoirs are being affected by the sediment washed down from the Sabana Yegua and Sabaneta Dams and the Tavera-Bao Complex.

Historically, forest fires have been a part of forest development, but the new thing now is the spectacular nature and the magnitude of this year's fires.

Engineer Eleuterio said that the forest service has neglected fire control. There has been no implementation at all of the "system for the prevention and control of forest fires" designed by an FAO [Food and Agriculture Organization] expert, he said.

"Would that one day, the forest service might be capable of defeating this enemy of the forests," Eleuterio Martinez said.

## VENEZUELA

### Commission To Study Damage to Avila National Park

92WN0109A Caracas EL UNIVERSAL in Spanish  
Section 1, 17 Oct 91 p 36

[Article by Dora Maria Rojas]

[Text] Our beloved Avila National Park, the source of inspiration for numerous brilliant individuals who have



succeeded in recreating its incalculable beauty in the most varied media, presents a very discouraging picture at the present time.

The invasion of the majority of its areas for the pursuit of different activities which alter the normal balance of nature, with the resulting destruction of the vegetation, is the sad reality being seen in Avila, the "green lungs" of our contaminated city.

The national executive branch appointed a commission headed by a representative of the Ministry of Environment and Natural Resources to study the situation and to look for possible solutions. The members of the commission include representatives of other ministries, the government of the Federal District, and the Vargas and Libertador municipalities. The executive branch also promulgated a decree declaring the affected sectors a "protected recovery zone."

Carmelita Rodriguez de Brandt, the president of the commission, regards the current state of the Avila National Park as extremely worrisome, because it is under severe attack by the city.

#### **A Latent Threat**

According to Rodriguez de Brandt, the park has been invaded not only to build homes, but also by the establishment of a series of strategic installations and systems within the Tacagua corridor, an area which is part of the park, for the purpose of supplying the city of Caracas.

Because of their nature as functioning municipal systems, these installations cannot be moved, although they themselves represent a danger to the inhabitants of the sector and to the park because of the chemical emanations produced by these plants, she said.

The president of the commission added that the homes here are built without prior planning and without consideration of the risk this represents. This chaos has caused the deterioration of the soil, which has always been unstable, to the point of resulting in the well-known earth slides.

There are some very high risk sectors in which the status of a whole series of structures is critical because they are located on land with geotechnical faults which could give way at any time and cause a collapse.

"This process of deterioration is intolerable in a park which not only exists in order to preserve plant and animal species, but is also the main supplier of oxygen to the city. All of this is characterized by a biological order which cannot be changed," Carmelita Rodriguez de Brandt, who is an architect, says.

#### **The Most Critical Zones**

The commission has indicated that the area which extends toward the west, that is to say from Cotiza toward the Catia zone, along the highway from Caracas to La Guaira and continuing to the Vargas coast, has suffered the worst damage.

The demographic pressures of the last 25 years have led to invasions all along the northern boundary on the coast, and southward into the metropolitan zone. It is in the latter area that the problem is becoming most seriously aggravated.

It is important to note that the number of individuals living in sectors of the park has reached the substantial figure of 100,000.

#### **No Eviction Policy**

Carmelita Rodriguez said that the goal of the commission is not to evict the individuals living in the zone, but rather to undertake a detailed study of the problem because of its major social implications.

She said that the goal of the commission is to draft short-term measures for cleaning up the park and safeguarding the lives of the individuals living in the zone, along with supervision of the systems which supply Caracas and the coastal area.

Despite the fact that the damage in the protected recovery zone, which covers 2,000 hectares, involves 60 percent of the area, the commission maintains that a large portion of the sector can be rehabilitated.

To slow the development of the problem, a program of control and supervision will be implemented with the cooperation of the Mounted Squadron of the National Guard and employees of the Ministry. Plans also call for the placing of additional signs to indicate clearly where the park begins.

#### **Priority for Raising Awareness**

"There is a need to undertake an environmental education campaign among the people designed to alert the citizens to the need to protect Avila," the president of the commission said.

She went on to say that the people must be made aware of the danger to them posed by the building of housing in park areas.

Avila is part of a world system of protected areas, the purpose of which is to safeguard this unique and irreplaceable patrimony through the drafting of a strategy for the care and preservation of it, the commission president said.

#### **Reforestation Planned for Monagas, Anzoategui States**

*92WN0109B Caracas EL UNIVERSAL in Spanish  
Section 2, 18 Oct 91 p 14*

[Text] The Interamerican Development Bank (IDB) has today announced approval of a loan in the amount of \$62.5 million for the development and protection of forest plantings in the eastern part of Venezuela. The purpose of the effort planned is to reduce imports of wood products and to improve the environment.

The project will benefit from the comparative international advantage enjoyed by Venezuelan forest products, in terms of location and production costs. Its goal will be achieved through the development of a sustainable supply

system for unprocessed forest products in the eastern region which will facilitate investment by the private sector.

At the present time, Venezuela has a deficit in its foreign trade in forest products amounting to \$250 million a year.

The project will consolidate and expand commercial forest plantings already established in the states of Anzoategui and Monagas. It will include reforestation, mainly with the *Pinus caribaea* species, of 165,000 hectares of savannah which is currently unproductive, as well as the protection of 570,000 hectares against pests, disease, and fire.

The program also calls for upgrading about 325 km of forest roads, which will be asphalted.

The financing will be used to provide technical and institutional support, including genetic research and development, training, and consulting services for the participating institutions.

The environmental benefits of the project will include a reduction in soil erosion, protection of the local flora and plantings against fire, increased retention of carbon dioxide, better land-use planning, and the increase in knowledge obtained through research on the sustainable utilization of soils and forests.

The project will also include activities designed to mitigate the effects of planting a single species, including the maintenance of natural vegetation, reforestation with local hardwood species, and the establishment of refuge areas for fauna in the zone.

### **Program for Preservation of Tipocoro Forest Preserve**

*92WN0109C Caracas EL UNIVERSAL in Spanish  
Section 2, 20 Oct 91 p 24*

[Article by Ignacio Loyo]

[Text] Barinas, 19 October (INNAC)—A program is to be developed over the next 37 years in the Ticoporo Forest Preserve to ensure its rehabilitation. Special priority will be given to the human sector, and the peasants will be incorporated in the defense of the ecology of this important forest resource.

Alberto Ramirez, a peasant leader in Socopo, said that following a long period of struggle, and thanks to the contribution made by all of the active forces in the zone and the support of the government and the legislature, as well as the participation of the Ministry of Environment, a virtual agreement has been reached. It will guarantee the survival of the reserve and the participation of the peasants currently living in certain areas of the sector in the conservation of the timber wealth and the environment in general.

Ramirez said that through the agreements reached, the reserve will be safeguarded for the purposes designated by the state, but that all of the peasants engaging in farm operations there will remain.

This is a program planned for the long term. Thirty-seven years is the provisional period of time during which the occupants will be assured of an improvement in the quality of life. Also, the right to participate in forest activity will be granted, along with the simultaneous duty to defend the natural wealth of the forest.

## REGIONAL AFFAIRS

**British Report Warns of Radioactive Danger From Allied DU Ammo Left in Gulf***LD1011091691 London THE INDEPENDENT ON SUNDAY in English 10 Nov 91 p 1*

[Article by Nick Cohen: "Radioactive Waste Left in Gulf by Allies]

[Text] The Allied armies left at least 40 tons of depleted uranium on the Gulf war battlefield, a secret report by the United Kingdom Atomic Energy Authority [AEA] has warned. The chemically toxic and radioactive waste threatens the long-term health of thousands of Kuwaitis, as well as Western clean-up teams. It could also pass into the food chain and water supply.

The uranium was in tens of thousands of armour-piercing rounds fired at Iraqi vehicles from American aircraft and British and U.S. tanks during the conflict.

An AEA appraisal of the threat, which has been seen by THE INDEPENDENT ON SUNDAY, calculates that there is easily enough uranium in Kuwait and southern Iraq to cause "500,000 potential deaths".

The authority says that this is a purely theoretical calculation, which is "obviously not realistic". However, it adds that the sheer volume of depleted uranium does "indicate a significant problem".

The report was prepared in April by decommissioning and decontamination specialists working for AEA Technology, the commercial arm of the atomic authority, at the Winfrith Establishment, Dorset. The authority offered then to send "a small and dedicated team" to the Gulf "in total confidentiality". It wanted to identify the size of the problem and devise a clean-up plan. The worst concentrations of depleted uranium could then be removed and potential health hazards minimised. But, after six months, no action has been taken by the British government or by Royal Ordnance, the privatised Ministry of Defense munitions supplier responsible for clearing the British sector of the Gulf war battlefield.

"Discussions are continuing with various parties," a senior AEA official said last week.

"They have not gone as quickly as we would have hoped." The authority has so far failed to get the go-ahead despite warning that expert assistance was needed because depleted uranium "requires sensitive equipment and well-trained operators as it is difficult to locate".

An appeal to political self-interest has also failed. The report said: "A further concern is a political one of leaving significant quantities of uranium around Kuwait. The problem will not go away and should be tackled before it becomes a political problem created by the environmental lobby. It is in both the Kuwait and the UK interest that this is not left to rear its head in years to come."

The report was sent to Royal Ordnance and unspecified British government departments. The Ministry of Defence and Foreign Office denied any knowledge of its contents. A

spokesman for Royal Ordnance, which has about 250 sappers clearing mines in the desert, was unable at the time the company was contacted to say whether the company had received the report, as was a spokesman for the Kuwaiti Ministry of Defence.

The AEA would not say whether the Kuwaitis had been told. At the time the report was produced no decision had been made on whether to inform the Kuwaitis, who have passed responsibility for clearing the battlefield to contractors from the allied powers. The issue of whether the Kuwaiti government needed to know was described earlier this year as "delicate".

Delays in acting on the report are understood to be the results of problems in co-ordinating the response between the various clean-up teams in the different allied sectors and the fact that much of the waste lies in Iraqi territory.

The Atomic Energy Authority believes some of the waste could still be properly and safely cleared if a decision can be made soon.

The AEA said in April the best estimates were that US tanks fired 5,000 depleted uranium rounds. U.S. aircraft many tens of thousands of rounds, and British tanks "a small number". The tank ammunition alone would contain more than 50,000 lb of depleted uranium - enough radioactive material, on International Committee of Radiological Protection risks estimates, to cause "500,000 potential deaths" if it were inhaled, the report says.

This figure bears no relation to real hazards because for half a million to die, the uranium shells would have to be pulverised into dust and 500,000 people would have to line up in the desert and inhale equal quantities.

The AEA says that the real danger comes from uranium dust produced when depleted uranium [DU] shells have hit and burned out Iraqi armoured vehicles. If airborne particles are inhaled they can lead to "unacceptable body burdens".

The depleted uranium will be "spread around the battlefield and target vehicles in varying sizes from dust particles to full-size penetrators", the report says. "It would be unwise for people to stay close to large quantities of DU for long periods and this would obviously be of concern to the local population if they collect this heavy metal and keep it.

"There will be specific areas in which many rounds will have been fired where localised contamination of vehicles and the soil may exceed permissible limits and these could be hazardous to both clean-up teams and the local population. Furthermore if DU gets in the food chain or water this will create potential health problems."

**UN Expert Says Israel Uses \$2 Billion Worth of Arab Water***NC2711172091 Cairo MENA in Arabic 1501 GMT 27 Nov 91*

[Text] Amman, 27 Nov (MENA)—Engineer 'Ali al-Labadi, UN Development Program advisory expert, has said that Israel gets \$2 billion worth of Arab water annually.

He told a MENA correspondent in Amman that each year Israel consumes 700 million cubic feet of Arab water from Jordan, Yarmuk, and al-Litani rivers and from ground-water in the occupied territories. Israel, he went on, uses this water in Israeli settlements and populated areas on the Mediterranean coast and the Negev.

The UN expert pointed out that had the water been unavailable, Israel would have been forced to desalinate seawater to meet its increasing water needs, adding that the cost of desalinating one cubic foot is \$3.

Al-Labadi took part in a seminar which ended yesterday evening, on the Middle East water problem.

## EGYPT

### Parliament Recommends Anti-Pollution Measures 92WN0099A Cairo AL-SIYASI in Arabic 6 Oct 91 p 5

[Article by Anwar [Wahsh]: "Parliamentary Recommendations on Countering Air Pollution"]

[Text] After several successive meetings and discussions, the Health and Environmental Affairs Committee decided to submit certain recommendations for consideration by the government and the Office of Environmental Affairs. The committee was chaired by Dr. Husayn al-Sirafi and was attended by the minister of state for administrative development and petroleum; Dr. al-Muhammadi 'Id, head of the Office of Environmental Affairs; and representatives of other concerned ministries and authorities. The committee's recommendations deal with the most important environmental issue, air pollution, and they are:

- Preparing the necessary legislation to protect the cities and towns from air pollution
- Carrying out needed studies when establishing factories that could cause air pollution, in order to determine the right location for them. Such factories include oil refineries and cement and fertilizer plants.
- Spreading environmental awareness and encouraging patterns of behavior that would help to protect the environment
- Requiring factories that emit pollutants to use filters and to quickly install special devices to measure the air pollutants coming from cars [as published], and to encourage the use of ordinary bicycles to limit pollution
- To quickly implement studies and projects of the Office of Environmental Affairs on planting trees in the cities, establishing gardens, and spreading greenery within the republic.
- Replacing machinery and equipment that operates on solar power for others that operate on gasoline or electricity. This is to be done by substitution and renewal.

## INDIA

### Annual Report on Pollution of Coastal Waters Issued

91WN0036A Madras THE HINDU in English  
12 Sep 91 p 4

[Text] New Delhi, Sept. 11—Pollution caused by industrial effluents and other wastes continue to pose a serious danger to the marine life and to the humans consuming some of the species. According to a study made on the waters of important coastal areas of the country, some areas have been affected seriously though in some cases the contents of dangerous pollutants are within the limits or are washed by tidal flushing.

In the last one year the level of oil pollution in Neendakara (Quilon) fishing harbour did not decrease, according to the annual report of the Department of Ocean Development. The high oil content was observed near the Quilon harbour due to the discharge of oil and related wastes by the mechanized fishing vessels operating in the vicinity. Similarly, concentration of toxic heavy metals in the sea water along the Kerala coast was not found to be high. However, the presence of mercury in the sea off Trivandrum, which is due to the discharge of titanium effluents into the sea is a matter of concern. The monitoring studies revealed that the effect of discharge of waste water from the soda ash manufacturing industry in coastal waters of Okha has not affected the quality of the water. This is probably due to regular tidal flushing, according to the report.

Long-term damage: The ammonia entering marine waters off Porbandar, where the waste water from a soda ash industry having high pH value and ammonia is released, is oxidized nitrate. Although, the observed levels of ammonia may not result in visible impact such as fish mortality, long-term ecological damage and damage of marine life cannot be ruled out in view of the high toxicity of free ammonia. The coastal waters continue to show high levels of pollution during the ebb tide period and this was particularly evident at Thane and Mahim creeks, where the residence time of waste water is rather high. The pollution of Bombay waters is caused by the huge quantities of domestic and industrial waste waters.

Similarly, a disturbing picture is painted about the Andhra Pradesh coast which is affected by high contents of heavy metals and other pollutants. Concentration of ammonia off Vishakapatnam due to dumping of municipal and industrial wastes is likely to affect the coastal waters, the report has warned. However, it pointed out that decreasing trend in the concentration of these elements in inland and offshore areas reveal that the exchange of waste between the high and low tides plays a significant role in the dilution of pollutants.

Below standard limits: The levels of pollutants due to heavy metals in most of the locations along the West Bengal and Orissa coasts were below the standard limits. Even though the presence of mercury was noticed off Haldia and Ganjam, the concentrations were found to be

very low and the presence of other elements such as cadmium was not traceable both in water and sediments.

Clams collected off the Madras and Pondicherry coasts showed higher levels of DDT and thus reflected the current usage of DDT for vector control in urban localities. The levels of HCH residues were slightly higher in clams collected off Porto Novo, Pondicherry and Nagapattinam coasts, which shows predominant usage of HCH for agricultural purpose. The levels of polychlorinated biphenyls were found to be low in clams collected at all locations along the coast of Tamil Nadu, which indicated their low usage by the electrical industry.

The annual report said that Apex Committee on control of Marine Pollution has taken steps to formulate an integrated programme on marine pollution and to allocate functional responsibilities to various Government departments and agencies with respect to different aspects of marine pollution.

## ISRAEL

### First Phase in Seas Canal Project Given Go-Ahead

TA1511054891 Jerusalem QOL YISRA'EL in Hebrew  
0500 GMT 15 Nov 91

[Text] The Israel Electricity Company's board of directors has complied with the energy minister's request and has actually given the go-ahead for the construction of the water reservoir planned in the Dead Sea area, which, so the minister believes, will constitute the first phase in the Seas Canal Project [connecting the Dead Sea with the Mediterranean].

Our correspondent Shulamit Schmerling reports that the project plans call for building a hydroelectric power station south of the Dead Sea which would operate on the principle of water cascading from a high altitude. The board of directors has approved the preparatory work to the tune of \$12 million. This work will last approximately one year, while the entire project will be completed in the early 2000's and will cost 500 million shekels.

## JORDAN

### Desalinization Plant Planned for al-'Aqabah

92WN0101A Amman JORDAN TIMES in English  
21 Sep 91 p 3

[Article by Nur Sati: "Jordan To Sign Agreement on Financial Aspects of Building Desalination Plant"]

[Text] Amman—Jordan will sign an agreement Sunday with an English and Italian firm on financial aspects of building a plant in Aqaba that would utilise solar energy to desalinate the Red Sea water.

Because the situation in the country has reached the red line and Amman is witnessing a shortage of 90,000 cubic metres of water every day, the project is designed to meet the country's needs for drinking, industrial and agricultural purposes, according to officials.

"The plant would offer a lucrative solution for water using indigenous sources of energy," said Dr. Hani Mulki, president of the Royal Scientific Society (RSS).

The plant is designed as a scientific and economic venture for the southern part of the region. If it is successful the project will be launched in other parts of the Kingdom, he said.

According to the Italian team, Termomeccanica and Cesen, who together with the English team, Desert Consultants Ltd., submitted the report to Jordanian experts, the process for desalting the water is reverse osmosis which is coupled with the production of energy by photovoltaic.

Photovoltaic is the process in which two dissimilar materials pressed into tight contact act as an electric cell when struck by light or other radiant energy. If the free ends of the two materials are connected by a wire, an electric current flows which can be used to measure the brightness of the incident light or to power an electric circuit.

Giorgio Donega, the Italian team's executive-vice president, said that "the area in Aqaba is already structured for us and as soon as financing of the project is available we can start this project."

The plant would begin producing desalinated water 12 months after the design is approved, he said.

A seminar organised by the RSS Wednesday focused attention on this issue. Attending were representatives from the Ministry of Energy and Mineral Resources, RSS staff and the Italian and British firms. Among the discussions was the technical aspect of the plant and its feasibility.

"Desalination alone is feasible," Dr. Mulki said. "It has been used for a long time in the Gulf and Saudi Arabia, but the economic feasibility is something we have to look carefully into."

The cost of the plant is not yet known but Dr. Mulki said, "We have to estimate the cost of the water and calculate what the returns of the project is in totality."

The Jordanian team is looking at the possibility for a B.O.T. (built, operate and transfer) financing, where the consortium will build the equipment, run it for a few years and after that transfer it to the government. The cost will be made public once the financial aspects are discussed with the RSS.

Desert Consultants President Jean Paul Airs said that there will not be any negative impact on Jordan in terms of the environment. "Solar energy is the cleanest form (of energy). It will not pollute the atmosphere especially the waters."

Desert Consultants is a company that has two world patents for pollution monitoring, he said. "Apart from designing projects, consultancy on water and its monitoring, we monitor the atmosphere, soil, meteorology and all types of water," Mr. Airs said.

As far as operations are concerned, it is one of the easiest plants to operate because it has a static power supply, Mr. Donega said.

The plant will supply about 450 cubic metres of water a day. It will operate during the daylight but it is also possible to supply energy with diesel generators which will allow the production of water during the night if needed.

The project, which will address one of the most pressing problems in the Kingdom, was received with interest on the part of the participants. This Sunday, the English and Italian firms will hold discussions with the RSS to come to an agreement and sign the protocol of the agreement in the financial aspects of the project.

There were many discussions on the pros and cons of supplying water through pipelines of long distances and water through photovoltaic or conventional systems, Mr. Airs said. "This system, once proven, will be the saving grace of many towns in Jordan," he said.

Desert Consultants have already built similar projects in Columbia, Jamaica, Ethiopia, Mauritania and Tanzania.

#### **King Talal Dam Water Quality Improvement Sought**

*92WN0101B Amman JORDAN TIMES in English  
8 Oct 91 p 5*

[Article by Dr. Usamah H. Mudallal: "Water in King Talal Dam: Nature, Management Determine Water Quality"]

[Text] The quality of water running out of the King Talal Dam and used for irrigation in the Jordan Valley has been a subject of controversy. In the following article the writer, a water resources consultant, describes the quality of water in the dam and proposes measures to improve it.

The impact of urban drainage, treated or untreated waste water and impure water discharged into rivers or other water bodies is one of the major problems in the water industry, environment and crops irrigation in Jordan. King Talal dam's water is one of those water bodies affected by urban drainage and environmental problems. This questions its role as a major source for irrigation in the Jordan Valley.

The purpose of building the dam was to carry out an ambitious plan to irrigate 60,000 dunums (6,000 hectares) in the Jordan Valley. Since 1976 periodical sampling for chemical and biological analysis has been carried out by The Royal Scientific Society (RSS), which has been releasing reliable information in its annual technical report since 1980. Other bodies such as the Jordan Valley Authority, the Water Authority of Jordan as well as the University of Jordan, also carried out similar studies and analysis. None of these studies, however, reached the level of consistency, continuity and sometimes reliability as that of the RSS. With this bulk of information, the main difficulty has been matching the results of the analysis with irrigation programmes, technical papers, research papers and environmental priorities, and converting the findings into working tools.

#### **Hydrological Measurements and Quantity**

Until 1986, the flow of the River al-Zarqa' (base flow and flood) was the main source of water supplying the King Talal reservoir. The average annual total base flow of River al-Zarqa' is about 40-42 million cubic metres (mcm) per year. The average total runoff of the river was estimated to be in the order of 97 mcm per year, but the maximum amount of water entering the reservoir was recorded at 107 mcm during the 1987-1988 season. The amount of water released from the dam for irrigation has not been governed by a long term plant for water distribution, contrary to any water management philosophy.

In early 1986 the al-Khirbah al-Samra' treatment plant, north of al-Zarqa', started to discharge its treated sewage water into the River al-Zarqa' through Wadi al-Zulayl reaching the reservoir after covering a distance of about 45 km. The amount of treated water discharged into the reservoir increased year after year and was estimated to be 33 mcm in 1990.

The amount of the treated sewage discharged from the plant increased by 100 percent during five years of operation. Designed to treat 70,000 cubic metres per day, the plant has become overloaded with 28 percent of its working capacity by the end of 1990. This has negatively affected the quality of the discharged water. This situation is currently under consideration by the Ministry of Water and Irrigation. Studies to update, reshape and expand the plant are to start soon. When expansion is completed the present problem of overloading and partial low-quality water produced would be solved.

#### **The Quality of Water in the Reservoir**

As in any water reservoir in the world, there are two main factors affecting water quality: One the chemical, organic and biological loads entering the reservoir through the river; and two, the quantity and intensity of rain floods during the rain season.

In the case of the King Talal reservoir the first factor is related to the amount of chemicals carried into the reservoir through the River al-Zarqa'. The chemical loads are due to the amount of phosphate and other rich-mineral deposits and rocks eroded by the river along its sides.

The organic and biological loads carried into the reservoir by River al-Zarqa' are partly due to pollution from farm wastes along the river and partly to untreated waste water flowing into the river. It is believed that waste disposal and excessively-used pesticides flow from the farms directly or indirectly into the River al-Zarqa' water. The farm waste disposal is not yet quantitatively known. Qualitatively, the effect is detected and confirmed by analysis. Study of this problem should be made. The objectives of the study should lead to identifying the farms causing the most significant effect on the river water, to know the kind of pesticides used, the quantity used and the method of usage, and to quantify the impact of such usage and recommend guidelines and procedures of operation to reduce the amount of pesticides to be used to the lowest level possible.

The second factor (flow and floods of River al-Zarqa') depends on the amount of rainfall over the catchment area of the dam (3,300 square km). Good rainy seasons with rather high rainfall cause flooding in the river. So if the amount of water accumulated in the reservoir is high, the concentration of the chemical and organic material will be low and the water quality in the reservoir would be acceptable. The contrary is true. It can be noted that the reservoir itself acts as a natural treatment body for several chemical and bio-chemical components. Studies indicated that the concentration of the main pollutants in the water entering the reservoir decreased in the order of 58 percent to 68 percent in the water leaving the reservoir. Therefore, the quality of water in the reservoir does not maintain a certain trend. Generally it can be stated that deterioration of quality is expected in drought conditions.

According to RSS reports prepared successively during the last decade, an overall average concentration of the main pollutants in the water leaving the reservoir for irrigation purposes in the Jordan Valley is within acceptable irrigation limits for most of the crops. Certain measures should be taken when irrigating sensitive crops and trees. Agricultural engineers can designate the proper crops to be irrigated.

#### Environmental Amenities and Management

Two phases can be carried out to achieve the best possible profit of using the King Talal reservoir water. The first phase is to carry out an immediate evaluation programme. This evaluation should include:

- Water quality and quantity used to supply irrigated areas in the Jordan Valley with the least water requirement.
- Kind of crops irrigated by water from the reservoir and the size of the irrigated lands.
- Agricultural guidelines followed during the last seasons.

The above information and data should be processed and examined by a team of specialists to come out with fruitful results.

The second phase is a long-term working plan which can be initiated at the same time with the first phase and parallel to it. This plan should include:

- The catchment area of the dam which should be divided into sub-catchment areas. Monitoring of sewage effluent, industrial waste and flood water should be undertaken to identify the potential sources of pollution.
- Flow and water quality computer model is to be built. Through this model the impact of urban drainage and the quality of irrigation water can be checked out. Also, the pollutant load, passing out to the irrigation water in the Jordan Valley can be detected and a long-term plan for water management can be drafted. This plan can be reviewed and modified easily as far as the environmental model is provided with the information gathered periodically all through the year.

#### Conclusion

King Talal reservoir is at present the largest fresh water body in the country. It is the main supply for irrigation water in the Jordan Valley.

Al-Khirbah al-Samra' treatment plant is a major source of treated water to the dam. The amount of treated waste water discharged from the plant during 1989 was about 33 million cubic metres (mcm). This quantity is increasing and expected to reach 40 mcm before the year 2000. This makes the plant of vital importance and a major source of supply to the dam. Special care should, therefore, be given to this vital source to utilise it in the best way possible.

Upon completion the expansion and up-dating al-Khirbah al-Samra' treatment plant shall be a main tributary to supply the reservoir with treated waste water accepted for irrigation. Thus the dam will have a better role in supplying water for irrigation allowing a more efficient plan for water distribution; thus better results in production, yield and prices would be achieved.

#### Farmers Protest Water Authority's Closure of Wells

92WN0101C Amman JORDAN TIMES in English  
9 Oct 91 p 3

[Article: "Controversy Erupts Over Farmers' Use of Underground Water Supplies"]

[Text] Madaba (J.T.)—A controversy erupted in the Madaba District involving local farmers and the Water Authority of Jordan (WAJ) following WAJ's decision to temporarily close local artesian wells.

Local farmers said that the closure of the artesian wells will cause great damage to their crops, especially those grown under plastic sheets.

The WAJ countered by noting that the closure was temporary and was necessitated by the scarcity of underground water due to poor rainfall over the past few years.

The WAJ actually allowed local farmers to pump water from these wells for two hours a day but the farmers said, in a statement quoted by the Jordan News Agency, Petra, that the amount was insufficient.

Shawqi al-Karadishah, WAJ Director in Madaba, said that the decision was taken following a thorough study of the water situation in the Madaba Basin. The district has not received sufficient rainfall over the past three years and local farmers have been increasing their pumping of water from underground resources in order to increase their profits, Mr. al-Karadishah said.

He added that erection of greenhouses and plastic sheets in the district was contrary to the Ministry of Agriculture's directives because Madaba farmlands depend largely on rainfall and not on underground water resources.

Madaba District products come largely from fruit trees which do not require irrigation like the vegetables in the Jordan valley, he said.

Mr. al-Karadishah said that since plastic culture farming in the Madaba District was an initiative of local farmers, they should find the means of providing water and should not rely on underground water resources, which are scarce in Jordan.

At the same time, a study conducted by the Agricultural Engineers Association in Jordan disclosed Tuesday that irrigated land in Jordan produces nearly 94 percent of the total amount of fruits and vegetables produced in the kingdom.

The growing population and the recent influx of expatriates will force Jordan to expand rather than reduce the area of irrigated land to produce more food, according to study quoted by the Jordan News Agency, Petra.

Since the 1960s the irrigated lands producing crops in Jordan have increased in area, reaching 550,000 dunums. Irrigation of these lands is conducted by pipe networks mostly in the Jordan Valley region, the study said.

It added that 550 million cubic metres of water were used for irrigation purposes in Jordan in 1990.

It was in the late 1970s that the pressurised irrigation systems were introduced to the Jordan Valley region because the open canal systems were not efficient.

The study found that the average individual consumes an average of 182 kilogrammes annually. But, due to the increase in population, the kingdom was in need of an additional one million tonnes annually by the year 2005 against the present 510,000 tonnes.

The study recommended that farmers should rely more on machines in order to try to meet the growing need of vegetables and fruit in the last decade of the present century.

Concerned authorities should widen the area of farmed lands and more irrigation water should be made available, the study concluded.

## KUWAIT

### Defense Minister Says Nuclear Radiation Level 'Normal'

LD1111093691 Kuwait KUNA in Arabic  
0813 GMT 11 Nov 91

[Excerpts] Kuwait, 11 Nov (KUNA)—Kuwaiti Defense Minister Shaykh 'Ali Salim al-Sabah confirmed that Kuwait is completely free from the effects of nuclear radiation following the Gulf war. Shaykh 'Ali al-Sabah in a statement to the 'SAWT AL-KUWAYT' newspaper

published today said that reports in the possession of the Kuwaiti authorities confirm that the level of radiation in the atmosphere and on the ground is normal and gives no cause for alarm and fear. [Passage omitted noting that the authorities carry out regular tests]

Shaykh 'Ali al-Sabah stressed that thus far no rise in the level of radiation has been recorded in the atmosphere or on the ground in Kuwait. He said: We take seriously reports which are published in newspapers on this subject and we submit them to the committees concerned for study. There is also coordination in the exchange of information with the states of the alliance which possess advanced scientific know-how and advanced equipment in these fields. He noted: If there was any information that concerned the health of the citizens we would not hesitate to publish it and take the necessary countermeasures.

Shaykh 'Ali al-Sabah denied that nuclear waste has been stored or buried in Kuwaiti territory. He said: In any event we would not permit such activity. We are a small country and do not have the know-how to store or to bury any of this waste material. [Passage omitted citing referent item]

### Official Terms British Radiation Pollution Report 'Exaggerated'

LD1511133791 Kuwait KUNA in Arabic  
1000 GMT 15 Nov 91

[Text] Kuwait, 15 Nov (KUNA)—An official at the Ministry of Public Health has said there is no basis for fears, to which a British newspaper report had given rise, that there has been radiation pollution as a result of the war to liberate Kuwait. Nuclear Engineer Samir Yusuf, head of the Department for Protection from Radiation of the Ministry of Health, told the AL-WATAN newspaper published here today that this report is exaggerated in such a way as to deprive it to a considerable degree of any scientific basis, and hence of its credibility. He said that a specialized committee from the Kuwaiti ministry will conduct scientific studies on this issue, and will collect samples from the places where Iraqi military equipment was damaged to measure their levels of radiation. He pointed out that the authorities concerned have been collecting this equipment in specific places. Therefore there is nothing to endanger the lives of the citizens, or expose them to the danger of pollution. He stated that if, for argument's sake, radiation does exist, it does not exceed the levels found naturally throughout the world.



**Environment Minister Vorontsov Decries Wasteful 'Economic Mechanism'***92WN0154A Moscow PRAVITELSTVENNYY VESTNIK in Russian No 31, Jul 91 [Signed to press 26 Jul 91] p 1*

[Article by N. Vorontsov, USSR minister of natural resources utilization and environmental protection: "A Word From the Minister: Spare the Environment!"]

[Text] Now, there is nothing new about speaking of crises in various aspects of our lives: economic, political, ethnic and otherwise. Unfortunately, our environment is also suffering through what is by far not the best of times.

In order to get a general idea of this, it is sufficient to examine the economic side of the problem. According to official figures, due to soil erosion—caused by water, wind and the like—our economy has been losing 16 billion rubles a year; due to water pollution—15 billion; as a result of air pollution (due to forests that have become unusable, respiratory ailments among workers and the like)—12 billion rubles. This means about 42 billion (at 1990 prices). However, according to expert evaluations, these figures were underestimated by at least two times. If we translate all of this into current prices, we obtain astronomical quantities that are frightening to think about.

And how much have we allotted to environmental protection, including reforestation? You won't believe it—less than 12 billion rubles. And these funds were "spread" over all the departments. And there has been no single keeper of this budget, nor is there one now. Our ministry's "wealth" consists of only 40 million rubles. With such miserly amounts of money, we have no cause to speak seriously of ecological measures: we can only "approve", "support", "recommend"... Ministerial appropriations only go towards controlling and maintaining the biosphere preserves, which serve as a kind of standard.

What kind of funds are necessary to support the ecological order? Let's use the United States as a comparison. And this is in no way a tribute to fashion: the fact is that the ecological problems of that state are very similar to ours, and it is also a large country. And so, environmental protection organs in the USA are allotted approximately 80 billion dollars a year. If we multiply our losses in the ecology by two, considering the fact that they are being underestimated, then it works out that we need the very same 80 billion rubles. That much money would be enough to maintain an ecological balance. Expenditures for emergency situations, the resolution of problems in ecological disaster zones would have to be covered by additional sources.

From all of this one can understand, or at least get a general idea of, the amount of money required to remedy the ecological situation, which is an urgent one for society. Even last year, the government was presented with a state ecological program that would take us up to 2005, published in PRAVITELSTVENNYY VESTNIK. Many years were spent in its preparation, even before the beginning of our movement towards a market economy. And now, we must seriously rework it. However, the strategic goals and figures will most likely be retained in their entirety: which ecological parameters, norms and standards we should work towards, what sort

of allocations we need, how many cleaning facilities we should build, what must be rebuilt and redesigned...

For example, we have calculated that over 15 years, we will have to invest about 340-380 billion rubles in the environment. This would give us an opportunity to achieve stability and even to improve the ecological situation in the majority of "hot" ecological spots. But this is not the solution to the ecological problems. What do I have in mind? Krivoy Rog holds second place in the USSR for releasing harmful substances into the atmosphere—1 million 380 thousand tons. But there are plans to reduce this figure to 700 thousand by 2005. However, this means that the ecological situation here in 15 years would still be 2-2.5 times worse than it is today in Dnepropetrovsk, Dneprodzerzhinsk, Zaporozhye, Mariupol, cities where the state of the environment is simply awful.

The program, of course, provides for an improvement in the state of the environment in these and other points. Figuratively speaking, it was developed according to the principle "one pair of earrings for each sister". Let's take Sumy. There, 30 thousand tons are discarded each year; after implementation of the program, this figure will be 20 thousand. This is not bad at all. But all the same, in my opinion, we should have concentrated our efforts on the most neglected regions, where the technical equipment needs to be completely replaced, a task that the state has not had enough money to complete.

In this manner, I think that the basis of the state program—final quantities, intended actions—will be preserved. But where can we get the funds? Again, I will use the United States as an example. There, only 40 percent of the basic resource allotments are made by the state. The remainder comes from fines imposed upon firms, and in the form of environmental taxes. Back in 1990, we conducted an experiment in 49 cities and oblasts in the USSR on the collection of environmental payments. We were successful in this—the money we obtained went into a special environmental protection fund, 85 percent stayed in the oblast environmental protection committee, 10 percent went to the republic and five percent—into the union fund.

One way or another, the economic mechanism for the implementation of measures that would improve the country's ecological situation needs change, serious change; it must be almost completely reworked. At the same time, despite the extremely complicated situation in the national economy, we cannot drag out the resolution of our ecological problems: further delay could mean irreversible damage to the environment.

**Vorontsov Warns Against Decentralizing Environmental Protection***92WN0083A Moscow SELSKAYA ZHIZN in Russian 29 Oct 91 p 3*

[Interview with Nikolay Nikolayevich Vorontsov, acting USSR Minister of Nature Use and Preservation of the Surrounding Environment, people's deputy of Russia, by scientific reviewer L. Kruglov: "Will We Divide the Biosphere?"]

[Text] Interrelations among the eight former Union republics after signing the Treaty on Economic Community are shifting to a new qualitative level. However, if the economic ties which were lost are finally arranged, then matters of solving common ecological problems will be far more complex. The conclusion of the interrepublic agreement on ecological safety has been delayed for an indefinite period of time. It is absurd and even dangerous to divide the biosphere. Natural processes do not recognize administrative and political borders, and only through unified efforts it is possible to overcome negative phenomena in the use of nature and preservation of the surrounding environment. How can we reach a general agreement? N.N. Vorontsov, acting USSR Minister of Nature Use and Preservation of the Surrounding environment, people's deputy of Russia, answers our correspondent's questions.

[Kruglov] Nikolay Nikolayevich, many ecological problems affect the fate of the country's entire population. Tell us about those that can only be solved together.

[Vorontsov] Really, too many such problems have accumulated. One of them is control over the condition of the surrounding environment in a unified geographic territory. It should be strict and should be conducted regardless of the borders between countries. For example, today data on cross-border pollution of the air basin in the Kola Peninsula, in Karelia, in the Baltic states, and in Belorussia are being processed in Ventspils. This gives us an opportunity to evaluate the condition of the air basin of an entire region. However, now the government of Latvia is raising the question of making payment for the receipt of this information, which is important for everyone, only in convertible hard currency. However, are not the Northwest, the Baltic area, and the woodlands a united ecological space? It is impossible to declare the "independence" of the atmosphere. The clouds carry acid rain without regard for borders.

And what about rivers? Only the basins of the Volga, Don, Kuban, Pechora, and North Dvina rivers are located in the European territory of the RSFSR; the Dnepr crosses Russia, Belorussia, and the Ukraine. The basin of the Kura, essentially, encompasses the entire trans-Caucasus, Turkey, and Iran. The West Dvina, having risen in the Valdai Hills, flows through Belorussia and becomes the main river of Latvia, the Daugava. All the republics of Central Asia and Kazakhstan use the Amu Darya and Syr Darya for their water needs. The Irtysh rises in China, flows through Kazakhstan, and falls into the Ob within the territory of Russia. Any declaration of ownership of a section of a river, just like a release of polluted sewage into a common stream, may be cause for serious international conflicts. Alas, I can already cite some examples. For instance, one of the mountain rivers which flows through the territory of Armenia and Azerbaijan became the object of a genuine ecological war. So, for the time being it is impossible to manage without unified control over water resources.

[Kruglov] Certain general criteria are needed here...

[Vorontsov] Unquestionably! Standards have been developed by the country's best specialists, rather rapidly and at

the cost of great efforts, for all types of use of nature. The maximum permitted norms (PDK) for the content of one of another toxic substance in the water, air, or soil have been scientifically determined. Inspection over the observance of state ecological standards has been arranged, and sanctions against violators have been defined. It would be imprudent to destroy this newborn structure: After all, the condition of the surrounding environment in a number of regions in the country is on the verge of catastrophe. Of course, it is possible to introduce national standards. These may be either stricter or milder, and can have legal force for a given territory. However, what will such lack of coordination lead to?

It is suggested that we use the standards adopted, for instance, in West Europe and the United States. However, then in many cases we will also have to shut down thousands of obsolete industries, which means dooming millions of people to unemployment. And this is at a time when inflation has spread across the country and the old economic structures have been destroyed! Such a policy will lead to nothing other than chaos. Our task is a gradual transition to world standards for the use of nature. In fact, not all of these are appropriate for us. For instance, the harmful chemical production of chloroprene at the "Nairit" Enterprise in Armenia is ecologically cleaner than the development of the same product in the U.S. by a factor of 100. Really, should we "catch up" to America here as well?

Or another example: The Tadzhik Aluminum Plant, one of the largest in the country, operates in the Gussarskaya Valley. Emissions from this enterprise have in fact ruined the gardens of neighboring Uzbekistan. Who determines the damage? Obviously, independent ecological arbitration, which it would be impossible to suspect of sympathies for one to the detriment of the other. To eliminate such a "third court," called on to protect the surrounding environment in a united ecological territory, would only be a gift to any destroyer of nature!

[Kruglov] In connection with the withdrawal of Soviet troops from countries of East Europe, claims are being made against us in connection with the pollution of the surrounding environment in places where our military units were located. Can any one of the republics assume the responsibility of investigating such a ticklish situation?

[Vorontsov] The material suits being made against us are significant, but sometimes they are too high. Until the ecological losses are assessed, Czechoslovakia is delaying the supply of houses for servicemen. However, in order to make a real material estimate of the ecological damage, we must send competent specialists. Otherwise, we will have to pay a rather larger sum than that which pays the modest salary of the experts, from a treasury that is empty even without this. The solution of the problem is being delayed, and our servicemen are roaming foreign streets. Soviet experts worked in Hungary for several months before the

withdrawal of our troops. Many suits were objectively reviewed, and the state budget saved hundreds of millions of rubles! Next is the withdrawal of the Soviet contingent of troops from the former GDR. So, will we pay as much as they demand? Or will we calculate the true ecological damage?

[Kruglov] Apparently, in the deputy corps, where there are not very many ecologists, the word "ministry" acts like a red cape before a bull. Well, they are all officials and bureaucrats!...

[Vorontsov] In the Ministry for Nature Use there are no pure administrators on the staff. Scientists and specialists in the fields of ecology, biology, geology, and geography work there. They have voluntarily left scientific work in the name of saving their native natural land. For comparison, a similar department of the United States has not 382 specialists, as we have, but more than 10,000 people, and all, as they say, attached to business. It is impossible to economize on the preservation of nature: This will end up costing us more.

[Kruglov] The Soviet Union is an equal member of many international organizations, including the UN Program on the surrounding environment. What will be the fate of our international ecological obligations?

[Vorontsov] To be precise, the USSR is obliged to fulfill ten conventions, 17 agreements, two protocols, one memorandum and one declaration. They all proceed from international nature-preservation treaties, such as, for instance, the convention on international trade in endangered species of wild fauna and flora (SITES). There are many species of animals inhabiting our country and many species of plants which need protection. At the same time, there are resourceful people who, under the name of various cooperatives and joint enterprises, passing by customs with all manner of truths and untruths, are trying to export this national wealth outside the borders of the country. One can imagine what kind of thievery will begin, if the republics, which have not yet signed the conventions, do not manage to organize control over the export of rare species through their as yet unorganized customs services.

Many of our preserves have international value, such as the shore of the Caspian, where millions of waterfowl spend the winter. They fly here from the Russian North and Scandinavia, where they nest in the summer. There are also state preserves of Union significance: the Astrakhan Preserve in the RSFSR, the Kyzyl-Agachskiy in Azerbaijan, and the Krasnovodskiy with a branch in Gasan-Kuli in Turkmenia. The preservation of these natural complexes falls under the Ramsarskiy Convention, also signed by the USSR.

Our country's most important international obligation is to observe the Convention on Protection of the Baltic Sea and the Declaration of Cooperation of the Danube States on the water management of the Danube and protecting this river from pollution. It will take a great deal of time and resources to reconclude the treaties on a republic level. Meanwhile, the ecological situation may worsen sharply.

[Kruglov] Nikolay Nikolayevich, quite recently, this September, the Congress of USSR People's Deputies resolved to draft and conclude an Interrepublic Agreement on Ecological Safety. The draft of this agreement was discussed by representatives of the nature-preservation agencies of the sovereign republics. What is its fate?

[Vorontsov] The participants in the Moscow conference confirmed that the unity of the ecological space does not depend on sociopolitical processes. The underestimation of ecological problems during the crisis period which the country is undergoing may lead to serious consequences. The draft agreement on ecological safety which we proposed provides for four membership statuses: federal, confederate, association, and observer. Each party has the right to choose the form of participation. The main thing is to achieve a tangible improvement of the surrounding environment on one-sixth of the earth's dry land.

### Commercial Deal Returns Enriched Uranium Supplied to Iraq

*LD1511153291 Moscow All-Union Radio Mayak Network in Russian 1430 GMT 15 Nov 91*

[Text] Western businessmen are trying to find places to store harmful industrial waste. For example, Namibia has received very alluring proposals. This deal could bring the country \$125 billion. However, the country's authorities have no particular enthusiasm for the proposal, and environmental campaigners are especially indignant.

If you are wondering why I gave you this report, here is the reason. The point is that the deal seems to have been clinched in another country. I am referring to the Soviet Union, where the first consignment of enriched uranium is to be sent under the conditions of the agreement on ending military operations in the Persian Gulf zone. We supplied the uranium to Iraq, and now it is coming back. I should mention that our raw material was used for a nuclear center near Baghdad. That was a TASS report.

Now, Agence France Presse, quoting Interfax, adds that the deal is commercial, and it includes not only the uranium which was supplied to Saddam Husayn during the period of our great friendship.

The question arises: Why do we need other people's waste to pollute our Russian soil, which is already in a lamentable state? The question is up in the air, you understand, but as soon as there is any new information, we will naturally tell you about it.

### Greenpeace's Influence Seen Waning in USSR

*92WN0132A Moscow ROSSIYSKAYA GAZETA in Russian 20 Nov 91 p 3*

[Article by Yegor Moiseyev under rubric: "Ecology:" "Greenpeace: From Offensive to Enlightenment"]

[Text] In September of this year, the "Greens" world ecological movement, Greenpeace, which has branches in 32 countries, including the USSR, celebrated its twentieth anniversary.

In our country first mention of the organization dates back only to 1985, when several "Greens" trying to take radioactivity samples off the shores of Novaya Zemlya were accused of interfering in the internal affairs of the Soviet state.

However, soon after that Greenpeace ads started to appear on TV screens, showing people in yellow coveralls in a small motor boat trying to stop a huge warship with nuclear weapons on board. Shortly afterwards music stores swiftly sold out an album called "Rupture," which included such well-known performers as Sting and Adams.

Thus Greenpeace entered our dreary reality, like a candy in a colorful wrapper. The movement's successful actions over these years include the setting up of a diagnostic laboratory in Kiev and establishment of the "Children of Chernobyl" East-West educational project linking environmental groups from American, European and Soviet schools in a unified computer network.

However, information about the movement is appearing less and less frequently, and mainly in critical vein. Why is this?

Eric Valberg, a member of the Greenpeace headquarters in Moscow, attempted to answer this question. He says that the Russian bureaucracy views Greenpeace as primarily a Western organization and is therefore demanding fees for services which are many times over reasonable limits. Today Greenpeace exists in Moscow with financial support from Europe, since it is unable to support itself with charity contributions alone. According to Eric, people in the USSR still do not associate survival with ecology. Most are primarily concerned with where to get sausage, butter, bread, etc. Nevertheless, in the Greenpeace headquarters I saw a huge number of letters with requests and demands to get to the root of one ecological outrage or another. That means that we are not all that indifferent to the environment in which we live. But on the other hand, are we again placing our trust in some foreign uncle?

In conclusion of our conversation Eric told me that Greenpeace would like to get in touch with local organizations concerned with environmental problems. Apparently, the Greenpeace people are beginning to realize that in the Soviet Union their primary efforts should be to share experience gained by other nations in the struggle for the environment.

### **Russia's Shelest Defends Environmental Experts Commission**

92WN0132B Moscow SOYUZ in Russian No 33,  
Aug 91 p 9

[Interview by Irina Krasnopolskaya with Liya N. Shelest, first deputy chairman of the RSFSR State Committee for Ecology and Nature Utilization, chief of the State Environmental Experts Commission: "We Gambled on Bureaucrats' Fear of Responsibility";]

[Text] *My interview with Liya Shelest, first deputy chairman of the RSFSR State Committee for Ecology and Nature Utilization, chief of the State Environmental*

*Experts Commission, was endlessly interrupted by telephone calls. Finally Liya Nikolayevna asked the secretary to block all calls.*

Today we are under attack from people dissatisfied with our decision. Such is the fate of experts. Rarely is anyone satisfied with decisions of the State Environmental Experts Commission.

### **Why?**

It is hard to combine environmental concerns with the interests of industrial development, ecological issues with the interests of citizens. Recently an attractive appeal was issued: to parcel out garden plots in Moscow Oblast. But land was often taken from forests of the first group or along the shores of lakes which are virtually dying from the burden of technology and can no longer perform their recreational functions. For example, Lake Biserovo fifteen kilometers from Moscow's outer ring road. Or the takeover of areas in Losinyy Ostrov Park! Why, this has been a natural preserve since Peter's time.

### **People have written about this so many times...**

Some write, but the decisions are made by others. A part of the Sokolniki area has been sold to an Austrian company, and they are building garages there.

It is even worse when the interests of health protection clash with the building of huge industrial monsters. Such, for example, as the Astrakhan gas condensate complex. Expert analysis of the project has been going on for more than two years. It is known to be "involved" in the ecological tensions of the Lower Volga region. Yet even the first section of the complex, which began operations back in January 1987, has not yet been accepted by the state acceptance committee. Note: the first section has not been accepted, but it is in operation. Its environmental damage is no longer denied, yet the second section is now under construction. It is going on in spite of the absence of a positive conclusion of the State Environmental Experts Commission. Moreover, the complex operates at a loss, it is subsidized by the state, and construction is financed under preferential conditions. In other words, it in no way fits into market relations. It's stupid!

### **And all this in our time!**

Just imagine. I could add that some of the environmental protection units of the first section, which should have been completed before the complex, are still not functioning.

### **A case of glaring incompetence and indifference to the environment and people's health...**

Unfortunately, the all-union ministries, for which there seem to be no environmental protection laws, have all become state concerns. And to them environmental protection legislation means nothing at all.

### **It's all so bleak! Can't anything be changed?**

We hope the Russian parliament issues a law on environmental protection, that there will be a law on state ecological expert analysis. This would in some ways protect our

environment and people, it would provide a tool which could help bring pressure to bear on the executive power.

**But so far there are no laws?**

There is a November, 1983, resolution of the USSR Supreme Soviet which prohibits the financing of projects without a positive judgement by the State Environmental Experts Commission. Unfortunately, the resolution covers only the state sector and state banks. But today much financing is being handled by commercial banks. True, the Russian Council of Ministers has approved the statute of the State Environmental Experts Commission, which extends the right of prohibition to all types of business activity, regardless of departmental affiliation. But so far changes are taking place so slowly...

**We are surrounded by "dirty" products, we eat God knows what and are happy that we have at least that. We breathe polluted air and drink not-so-clean water. The number births of deformed babies due to ecological reasons is steadily rising... Don't you feel that we are approaching an end of the world?**

The end of the world is not yet in sight, and it is entirely feasible to set the task of at least stabilizing the environmental situation in the country. If we succeed, then it will be possible to go on to some kind of improvement. In market conditions this can be achieved only if it becomes profitable for the society to invest in environmental protection. For that there are two ways. We must set a premium on our natural resources. Only thus can we stimulate the introduction of resource-saving technologies, only thus can we force investment into the restoration and maintenance of resources. Say, by investing money in keeping water clean. It is necessary to introduce a mechanism of fines for polluting the environment.

**Aren't there any now?**

Actually, the mechanism isn't working, because we have neither the appropriate legislation nor the necessary monitoring functions.

**But we have all kinds of laws which don't work...**

A law can work only when there is a mechanism for implementing it from top to bottom. It is much more difficult to devise a mechanism than to write a law.

**Can such mechanisms be set up in the environmental sphere?**

They have been set up in Russia, and we hope that they will be implemented. The second area is the prevention of possible negative effects of construction, prolonged operation of business facilities, and of business activity in general on the environment. Especially since the cost of preventing pollution is about one-tenth of the cost of later eliminating its consequences. That is the duty of the State Environmental Experts Commission. For instance, if the Leningrad dam hadn't been built we wouldn't have had this headache. Numerous land reclamation systems were built. They were built thoughtlessly, without justification. Instead of raising crop yields they eliminated much land from crop rotation. And a major problem appeared:

flooding of cities and communities because of artificially raised levels of ground waters.

The important thing now is to compile an inventory of the ecological situation in different regions and make it public. For many years many things were concealed. Especially things associated with radioactive contamination. For example, contamination of some areas of the Chelyabinsk and several other regions with radionuclides. This occurred in the 1950s, but the actual situation became publicly known only recently.

**And what about the filth in our cities and manufacturing enterprises, the processing of toxic industrial waste... What are we doing about that?**

Only a tiny fraction of domestic waste is processed in garbage incinerator facilities. Most is trucked to dumps which often even have no screening protection from ground waters. They become a source of contamination of neighboring wells. In general, the question of the quality of drinking water is one of the most serious environmental problems, and it will soon get even worse, because many regions of the country can no longer use surface sources for drinking purposes and are forced to get drinking water from artesian wells. But even those wells do not always guarantee water that complies with drinking standards.

In the world and in our country there are technologies economically suitable for processing domestic garbage and toxic industrial waste. But technology is one thing and practice is another.

I worked for many years in the Russian Gosplan, where I headed the state technical-economic commission of experts. I came to realize that the possibility and expedience of building any production facilities is limited first and foremost not so much by economic as by environmental, social, and even moral factors.

I remember the enormous, painful efforts of the Russian Gosplan's commission of experts, against the pressure of the USSR Council of Ministers, to halt the transfer of water from northern rivers to the Volga River basin. At one point my chief, Anatoliy Nikolayevich Gladilin, and I seriously contemplated looking for new jobs. It is only now that the absurdity of the idea is obvious to all, but then... Now great economic damage is being caused by the rising level of the Caspian Sea. Yet at the time the transfer of northern rivers to the Volga basin was justified by the need to maintain the level of the Caspian. If the transfer had been carried out, the level would now be even higher and the damage accordingly greater. Our commission of experts and the Russian State Nature Committee [Goskompriroda] managed to halt construction of the Katun hydropower plant in the Gornyy Altay region. Construction of the plant is not only unnecessary for the Siberian power system, it is also of small use for raising the economic potential of the Altay region. Besides, in my view it is immoral and impermissible from both the environmental and ethical point of view. Because the upper reaches of the Katun are Rerikh places, a beautiful region which simply should not be "transformed."

**But Lake Baikal is a beautiful region, yet it is being transformed...**

That is a payoff from our system, in which not only land and water cost nothing but, as a logical conclusion of the attitude towards natural resources, so do people. They are merely tools of labor. The command-directive method of structuring our economy has led to a state when everything is nothing.

**And now?**

What worries us most is the plundering of the riches of Russia. Natural resources are exported to cover the deficit of the economy. We will be total bankrupts if we permit the destruction of the genetic potential of the animal kingdom and natural systems. We can shoot off kabarga—there is such a little goat. We sell its sperm for a lot of hard currency. We export ginseng, the horns of Siberian stag, red billberries... You should understand that I am not against trade. It is necessary. But I am vehemently against the barbarous destruction of nature for such trade. We are chopping the branch on which we are sitting. I am worried about the operation of our laws in free economic zones. Control functions should be firmer there than in other areas. We are being flooded by a stream of technologies from the West which do not always correspond to our environmental requirements.

**Was it easier to work in the stagnation period?**

There was no market, there was the command method of economic management with rigid economic structures. We managed to adapt to those structures and knew how to skirt obstacles. That is, we knew the rules of the game played by the bureaucrats of the management system. They had one very vulnerable point: they tried never to assume any responsibility, and we took advantage of that. Now the process is sometimes out of control and sometimes simply unpredictable. For instance, to conduct an expert inspection of some project in the Far East we have to at least know of its existence. But sometimes we don't know, because the financing is carried by a Moscow bank, while the fact that the project is in the Far East is kept secret. It is economic chaos.

**What are your hopes?**

That laws on ecological expert control and environmental protection will be finally passed and a system for implementing them will be created.

#### **RSFSR To Boost Legal Safeguards Against Pollution**

92WN0131A Moscow LITERATURNAYA GAZETA  
in Russian No 46, 20 Nov 91 p 5

[Interview by K. Kozhevnikova with Aleksey V. Yablokov, RSFSR state counsellor: "If You Injure Health - Pay. RSFSR State Counsellor A.V. Yablokov Talks About Preparation of Ecological Protection Laws"]

[Text] Aleksey Vladimirovich, as is known, to this day the citizens of our country are quite defenseless against all possible ecological violations, which, unfortunately, are countless.

Yes, and we are very concerned with this problem. We now realize that to keep from sliding to total ecological catastrophe it is necessary to act in certain specific areas. We have identified the main disaster zones. Besides Chernobyl, these are the southern Urals, the Altay country, and Novaya Zemlya Islands. It has been established that more than 15 percent of the republic's territory, with a population over 40 million people, is in adverse ecological straits. We had adopted some good resolutions on the responsibility of enterprises for harmful emissions, contamination of the soil, water, and so on, even before, but they were handed down from above and did not yield the expected results. They were simply ignored.

**But the same could happen with the new decrees by the Russian President.**

That is why we decided not to limit ourselves to only prohibitive actions on the part of the state. It is necessary to provide legal protection for people who suffer from ecological violations of the law. Any person can sue and demand compensation for damage to health and thus keep other enterprises from mindlessly and heartlessly killing all living things. The range of diseases around a specific type of production is already known. And, vice versa, according to the inventory of diseases doctors can easily say whether people live in a petrochemical or paper-cellulose industry area. It is wrong to harm people and doom children to grave chronic diseases. Every person must have the right to sue.

**Have you had such precedents?**

Never. The courts simply refuse to accept such applications. But in the West this has long been common practice. When a nuclear power plant accident happened in the United States, all inhabitants received large compensation, they received payments for resettlement and acquiring housing. Or take that other well-known case in the United States of underground water contamination from a poison dump. Everyone received compensation for damages. But in the Soviet Union there has been nothing, except for the Chernobyl "coffin" payments. So now our ecological team of highly qualified specialists is developing a system of laws, or more precisely, a series of actions which would make it possible to protect the rights of people suffering from all kinds of ecological violations. This is very important now, when we are going over to a market economy. Private, small, joint-stock enterprises must operate from the outset in such a manner that the environment and people would not suffer. Let the law, and only the law, stand on guard of human well-being. It is necessary to set up a shield against environmental pollution and to protect individual rights, ecological as well as social and economic. A paper: "On the Ecological Security of Russia" has been prepared.

A large group of medics and lawyers is involved in work on documents. It is important to have a system of proof and

legal protection for those who suffer from contamination. We cannot let everything remain at the stage of talk. If you harm people, you must pay up. You don't like it? Then think about improving the technology. A market, and hence civilized, economy is oriented on human demand and benefit. And health is certainly not last, but perhaps first and foremost. I think that in half a year the new documents will be operative and serve the interests of nature, the interests of people.

### 'Ecological Pay' Urged for Donetsk Workers

92WN0117B Moscow IZVESTIYA in Russian 6 Nov 91  
Union Edition p 2

[Article by Eduard Kondratov: "Time To Pay for Dirty Air"]

[Text] There is increasing talk in Donetsk Oblast about the fact that many enterprises will pay their workers so-called "ecological pay" at the end of the year.

The Mariupol metallurgical combines release more than a ton of harmful industrial wastes per resident annually. In Donetsk, the maximum permitted concentrations of toxic substances, such as phenols and nitrogen and sulfur compounds, were exceeded on the city streets by a factor of 5-10. In the vicinity of the thermal power plants, 10-14 kilograms of carbon monoxide per day is produced per average statistical person.

At the last session of the Makeyevka City Soviet, the deputies unanimously deemed their city and the territory in a radius of 1 kilometer around the metallurgical combine, the pipe-casting plant, and two chemical coking plants an ecological catastrophe zone.

Having said the bitter truth about their city, the deputies planned to turn to the Ukrainian Supreme Soviet so that their decision will receive state recognition, and then, perhaps, there will in fact be legal grounds for making ecological assistance payments.

### High Radiation Levels Prompt Investigation in Tuva

92WN0117C Moscow ROSSISKAYA GAZETA  
in Russian 14 Nov 91 p 2

[Article: "Evening Teletype"]

[Text] Signs of radiation danger were discovered around the slag heaps of the Kara-Sugskiy complex of deposits in the Republic of Tuva. An area with a level of radiation above 70 microroentgen per hour is considered a danger zone. However, there are refining furnaces with radiation levels a factor of 30 higher in the adjoining territory. The geologists of a prospecting and survey crew from the Berezovskiy Production Association have started to eliminate the furnaces. Health and dosimetric documents are being compiled for the region of this deposit. An investigation of the adjoining areas is being made. Animal meat, water, and soil are being tested in special laboratories.

### 'Nuclear Saturation' of Kola Region Alarms Residents

92WN0116A Moscow RABOCHAYA TRIBUNA  
in Russian 9 Nov 91 p 2

[Article by Sergey Doronin, RABOCHAYA TRIBUNA military commentator: "A Nuclear Monster Is on Kola Shores?"]

[Text] About 60 items from various nuclear weapons and 12 reactors—Soviet and American—repose on the ocean floor. This according to the data of the NEPTUNE PAPERS. Altogether about 168-240 kilograms of plutonium in warheads and 1,120-1,240 kilograms of nuclear materials have been sunk by mankind. Including uranium materials. So is this the cost of the leading states' striving to become the planet's No. 1 in armaments? Their navies are equipped today with more than 550 reactors and 14,000 nuclear warheads

A specter wanders about Kola land. The specter is the nuclear monster. Until recently the northerners were staid and prudent; nowadays at the word "atom" they are wound up a half turn. And do not try to stop them. Six nuclear icebreakers—all are tied up at Murmansk. More than a hundred nuclear submarines equipped with nuclear missile and torpedo armament, and two nuclear cruisers. A total of 238 nuclear-propulsion reactors. Add to this the stationary reactors at the Kola AES [nuclear electric power station]. Is there anywhere else in the Union a region that is so saturated with nuclear energy? Do not search, you will not find one. And how can you not think about it, and how can you not wince: what kind of a keg are you sitting on, what is in it?

They also remember here an occurrence on the nuclear icebreaker *Rossiya* in November 1986. Things got just short of a meltdown of an operating reactor's nuclear fuel. They were successful in correcting the specialists' mistake. But the nuclear-danger situation continued for about four minutes. And where else but almost in the center of Murmansk!

But one must not forget: ChP's [emergencies] in the nuclear fleet (including the navy) on such a scale were unique for the 30 years of its existence. They fell in the category of extreme situations. There is something else—the daily routine associated with operation of the ship's propulsion plant.

There is also the past, made memorable by accidents and catastrophes. The losses from them are measured not only by the number of human victims. But also by the material losses.

A resident of the Kola Peninsula looks at this problem in his own way. To him it is more important to know what is happening nearby or what happened at one time. And it engenders unprecedented rumors and fear. Apparently, for example, schools of mutant smelt are roaming about the Kola Gulf...

I am interested in a Murmansk, USSR People's Deputy A. Zolotkov:



"Really and truly, Andrey Alekseyevich, did such fish turn up?"

"I'm hearing it for the first time."

It is worthwhile to listen to Zolotkov's opinion. He, if anyone, is one of those to whom such a concept as "radiation safety" is clearly known right down to the details.

How much, what, and where we have poured overboard and sunk in containers—all this must be established. Zolotkov has been carrying out this work relative to Murmansk Oblast by himself. The deputy is convinced that the attitude toward the Kola region must change radically. Otherwise it inevitably will be transformed into a dumping ground. There is still time, but it is wrong to let much of it go by.

Rear Admiral Ye. Rogachev, chief of the engineering administration of the Northern Fleet, talks about the work of the oblast deputy's commission in October of this year:

"Radiation purity hits the target especially of all. The radiation background in the wardroom of a nuclear submarine is six microroentgens per hour. It is one unit more on the nuclear missile cruiser *Kirov* when the reactor is operating. The deputies were convinced also of the existence of a procedure at shore points for the temporary storage of solid waste, the reliability of various types of monitoring...."

That means that we are controlling the nuclear monster? Or, let us put it this way, we are controlling it for the time being?

With enormous enthusiasm we built a nuclear fleet—civilian and naval—and we perfected it. Without thinking about, more precisely without mulling it over very much, the facts that while operating and servicing the propulsion reactors and overhauling them, wastes are inevitable, and that ships that have served their service life will have to be sent, if not for processing, then at least to a dumping ground.

And do not try to demand an accounting of the one who yesterday designed it, who was giving strategic guides to the shipbuilder. They sweep aside all charges against them completely: "No one gave us such tasks." There is no denying the truth, such tasks were not assigned. And they neither allocated nor are they allocating funds to be used. Thus the fleets wiggle out of the situation the best way they can in their striving to secure the surrounding environment from nuclear-powered vessels that have been written off.

I do not know whether nuclear-power engineering has a problem that is greater than the processing and prolonged storage of radioactive waste. Indeed, it would seem that such an elementary matter as a total inventory of it has not been arranged. Try to estimate how much has been accumulated in the country—a ton, two, ten? You will not do it

right away. Because you will have to "rummage through" dozens of agencies. But even they will not name specific figures.

Well, and to find out anything about all the burial places.... And so then one may wonder if, from time to time, areas with an increased radiation background are observed in cities.

This side of nuclear power worries only the ecologists at present. And still more, perhaps in greater degree, the operators. And then only because they have been left face to face with the problem of storing and burying waste. And this is no exaggeration. Take that same Northern Fleet. There is no place these days to put the nuclear compartments of four nuclear submarines that have been written off and prepared for utilization. There is no regional graveyard. And no one knows clearly how to deal with nuclear-powered ships that have been written off. Today, more than two-thirds of such ships of the Navy are standing at basing points with the reactor cores not unloaded. There are officers in charge and there are teams of some tens of men on them, but that is strictly prohibited at sea. By the end of the century we shall count many dozens of such nonsailing nuclear-powered ships....

World experience indicates that this question should be placed under the state's control, and not under the agencies' control, which we do. The truth is that we have neither a government of a so-called "center" nor governments of the sovereign states to which we have assigned the task: do we have at least some kind of, not a program but, a system for handling radioactive wastes, somewhere to store them, a way of processing them, and a budget for financing all this—is anyone in a position to do this job?...

The time will come and we shall grab it, but we should not delay....

### **Kola Nuclear Power Station Construction To Continue**

*PM2911140991 Moscow IZVESTIYA in Russian  
26 Nov 91 Union Edition p 4*

[Report by L. Kaybysheva: "Murmansk Power Workers Have Persuaded People the AES Must Be Constructed"]

[Text] Murmansk—The Murmansk Oblast soviet has decided to continue the construction of the Kola AES [nuclear electric power station].

Only recently in Kandalaksha, where the first four AES units are operating, signatures were collected to citizens' protests. Throughout the oblast there were protest demonstrations, mainly at the initiative of the "greens." For its part the Ministry of Power and Electrification was also in no hurry to expand the Kola AES, although the planning of its fifth and sixth power units was in progress and the construction base was being laid. The ministry believed that there was enough electricity in Murmansk Oblast. As a result financing was stopped.

For about 10 years the leaders of Kolenergo headed by Vitaliy Meshkov haunted the threshold of every office, trying to prove that there was the prospect of an imminent energy crisis.



And so there was...

A city without heat or light is a subject for a horror film, especially in the Arctic. To avoid this we will perhaps simply have to stop the electricity-intensive enterprises. A tough energy saving program was required of the oblast soviet. Last winter the provision of hot water and heat was already restricted in Murmansk. One more heat and electric power station must be constructed.

And the Kola AES needs additional maneuverable capacities—primarily hydroelectric units. The Iokanga river, with its scant fish resources, could, in the experts' opinion, be of use. But arguments about the prospect of its use have not ended. The inhabitants of Kandalakshskiy Rayon (almost all of which is within the 30-km zone of the Kola AES-2) have now agreed to the AES, but not free of charge. They have stipulated a long list of terms including social demands, free energy supplies and heating for those working at the Kola AES. A new information center is also envisaged at the Kola AES.

A normal, civilized approach.

#### **Authorities Admit Nuclear Mining Tests on Kola Peninsula**

*PM2911173091 Oslo AFTENPOSTEN in Norwegian  
26 Nov 91 p 4*

[Jan-Anders Ekstrom report: "Nuclear Detonations on the Kola Peninsula"]

[Text] In the 1970's and the 1980's the Soviet Union also carried out small-scale nuclear explosions on the Kola Peninsula. The revelation came in the context of a report on the Kola Peninsula by Finnish television.

The authorities involved admitted that between the years 1972 and 1984 small nuclear explosions took place in an apatite mine around 20 km east of the town of Kirovsk. The aim was to discover whether nuclear detonations are useful in the extraction of mineral ore.

On a news program on Finnish television yesterday a representative of the local Soviet authorities said that a total of three nuclear explosions took place, one in 1972 and two in 1984, and that the power of the strongest was two kilotonnes.

Kirovsk is only 200 km from the border with Finland and around 240 km from Norway. However, Finnish authorities received no notification at all about the detonations, either before or afterwards. Nor were the inhabitants of Kirovsk told anything.

The Finnish authorities have now said that the detonations were registered by measuring instruments in Finland, since they were 20 to 30 times stronger than normal mining explosions. However, the alarm was not raised, because it was impossible to register any form of radioactive emission. The risk of such emissions is said to be very small in the case of such small nuclear detonations underground.

The Soviet authorities also claim that there were no radioactive emissions, but admit that plutonium could have leaked out into the groundwater locally.

The Soviet official interviewed on Finnish television said that he was less than happy with these remarkable experiments.

"Thank God, such experiments are no longer permitted," he said.

#### **Kyshtym Holds Lessons for Other Nuclear Accident Sites**

*92WN0086A Moscow KOMSOMOLSKAYA PRAVDA  
in Russian 29 Oct 91 p 4*

[Article by Special Correspondents K. Belyaninov, O. Volkov, V. Nedogonov, V. Umnov: "Chernobyl, 30 Years Later"]

[Text] We urge that this article be read by current and future officials of Bryansk, Zhitomir, Kiev, Gomel, Mogilev, Kaluga, Tula, Orel, Smolensk, Rovno, Chernigov, Brest, Minsk, and Grodno oblasts.

Chelyabinsk Oblast—The river divides the village of M. into two parts. And although they built a paved bypass road long ago, residents still walk straight across the rickety boards stretching from one bank to the other. Kicking pebbles, a young boy goes down to the river—it's the shortest route from school to home. Geese cackle on the stream, a calf browses on the grass. In terms of content of cesium-137, the river silt is classified as a solid radioactive waste.

Thirty years ago, all the neighbors were moved away from the radioactive T. River, both upstream and downstream. M. remained, for some reason. Maybe there simply wasn't enough money at the time for everyone. Today it's all the harder to come up with the money.

At one time, in order to protect people from the river, a barbed wire fence was erected along the bank and a soldier carrying an assault rifle was posted there. He was later replaced by a policeman, and the policeman was later replaced by an old man with a Berdan rifle from the extradepartmental security service. All that was long ago. Today the reinforced concrete posts left from the barbed wire fence protect the garden plots along the river—keeping livestock from getting into them.

A dosimeter, if placed in the footprint left by the schoolboy, would register 1,500 microroentgens per hour—100 to 200 times greater than the natural background radiation here.

Maybe some people would like to leave. But there's no point in it. Because in the resettled villages, the stores are just as empty, people have the same complaints about their health, and they curse the Zone the same way. Some have even been resettled several times to protect them from the radiation, and now they could be knocked off by a common cold—because the small prefabricated houses in which the resettled residents live have fallen into disrepair in 30 years' time, they can't retain any heat, and the holes in the floor and walls are big enough to stick your arm through.

The sturdy old homes in which they lived before resettlement have been buried in the ground.

This is a preserve now. A state preserve. And the road leading to it, which is used only by scientists and journalists, is guarded by a policeman.

People are no doubt reluctant to come here not just because of the policeman and the signs saying "Caution. Radiation!" The birch trees in the preserve are of such a strange shape—with branches growing from the very bottom of the trunk—that one is gripped with a silent terror: "Forget giant fruit flies, these are real mutants!" The people call these misshapen trees "witches' brooms." And it is for some reason hard to believe the specialists who say that it's all the fault of the elk, which are in the midst of a population explosion and are said to be eating the bark off the birches. About 100 meters away from the shell of the atomic power station and the abandoned vehicles and excavators, about 10 of those elk are roaming about. Their horns, of course, "glow." One official has hung a set of elk horns in his office and likes to talk about how the level of radiation level decreases in proportion to the square of the distance—It is virtually impossible for a casual visitor to enter the Zone itself—the city of Ch. Two rows of barbed wire and a plowed-up security strip straddle the border, as it were. The "border troops" from the internal troops are distinguished by their white overalls and hats. They let people in only with the permission of the Big Boss—and only if they are wearing protective clothing. Even the President, after he strode confidently past the "Radiation" sign, was swung around, stripped naked, and issued pants, a shirt, and overalls (his security detail, it's said, roamed about the sanitation checkpoint naked as the day they were born, but with pistols strapped under their arms).

Did you think we are outside Strugatskikh? No, this is no science fiction story about what the Chernobyl zone will be like early in the next century. This is Chelyabinsk Oblast, the city of Chelyabinsk-65, the village of Muslyumovo, the Techa River, and October 1991.

#### The Chernobyl We Were Unable To See

When on November 4, 1976, Zhores Medvedev published in the journal *NEW SCIENTIST* a brief description of the 1957 Urals catastrophe—the world's first—British, American, and French experts declared that no such thing was technically possible.

Our country, naturally, remained silent altogether. It never said a word about the fact that in 1960, as we celebrated the Mayday holidays, it was over this very zone that the American U-2 spyplane was shot down and its pilot, Powers, taken prisoner. We guarded the facility for producing strategic plutonium very carefully.

Someone spilled the beans only in 1989. And the person who did so, strangely enough, was the Minister of Medium Machine Building, L. Ryabev, who at the time was a candidate for the post of Deputy Chairman of the national Council of Ministers.

On the eve of his assertion—Lev Dmitriyevich knew perfectly well that Deputies from the Urals would not fail to look into the rumors of the accident—the Central Nuclear Information Research Institute finally published an official admission: Yes, there was an explosion at the radioactive waste storage facility in 1957. Radionuclides contaminated the surrounding land and air for a distance of many kilometers. And with them, the Techa River.

And the Deputies, after reading it, confirmed Ryabev's account. They didn't know at the time this that wasn't even half the truth—not even a fourth (or even an eighth) of it.

In 1949-1951, the Mayak [Lighthouse] enterprise dumped the wastes formed by plutonium production directly into the Techa; in 1951, traces of them were found in the Arctic Ocean.

In 1951, it was decided to pour the wastes into closed Karachay Lake, on the grounds of the installation (120 million curies, as against 50 million for Chernobyl as a whole).

On September 29, 1957, an explosion at the storage site holding radioactive wastes contaminated 23,000 square km.

In 1967, wind dispersal of radioactive aerosols from the Karachay's banks, which had been eroded as a result of a drought, contaminated 2,700 square km.

The Kyshtym accident remained a secret until the summer of 1989, and the name itself of the totally innocent city was withdrawn from use altogether.

In actual fact, the nuclear fallout pattern bypassed it altogether. Kyshtym is a small hilly town with narrow streets; the old palace of the Demidov industrialists sits on a hill.

At one time, Upper Kyshym factories smelted copper and pig iron (it is said that many London homes still have Kyshtym roofs to this day). Some Englishmen had tried for so long to obtain a concession that by the start of the 20th century, they were granted it from on high.

But the Soviet government needed wide open spaces. And the little town perched among the Vishnevyye Mountains was hardly suited to become a springboard for great construction projects. The little factories fell into disrepair. Nearby, however, construction of a secret installation was in full swing.

In 1949, this city—it's had many names, Chelyabinsk-40, Ozersk, and now Chelyabinsk-65—produced plutonium for the first Soviet atomic bomb. And it continued to produce plutonium up until 1990.

Legend has it that Kurchatov carried the first few grams away from the reactor in his bare hands. Perhaps that marked the start of our radioactive disasters—first through ignorance, and then through foolhardiness.

The well-trodden trail from Kyshtym into the forest was paved and closed off with a checkpoint. But bold spirits used secluded trails to get through the barbed wire, and they returned laden with oranges, lemons, and chocolate.

Today, mind you, the situation is the opposite! The artels of the once-secret physicists have spread throughout the Kyshtym area—the problem of almost all our “secret” cities. It is said that they make excellent furniture by order, solder radio components, and build cottages.

The Kyshtym secrets were kept for 40 years, right up until 1990. And when Chernobyl happened, the Chelyabinsk experience in dealing with the effects of the radiation accident—which, mind you, were also secret—went virtually unused.

#### How Could Kyshtym Help Chernobyl?

“Overall, it has yet to help at all,” said M. Kosenko, head of the clinical ward of FIB-4—the Chelyabinsk branch of the Biophysics Institute. The branch was specially established in 1962 to help the residents of the stricken areas.

Mira Mikhaylovna flew to the Ukraine on the morning of May 7, 1986. And what did she see? The diagnosis of “radiation sickness” was being given to people who didn’t have it, while alarming symptoms, on the contrary, were being overlooked. She said so, and got the reply: “And how do you know?” But she couldn’t answer because she had signed a statement pledging never to reveal anything. All the research findings are still in the safes of the Eighth Main Directorate of the USSR Ministry of Health.

In 1987, Kosenko worked in Belorussia. And it seemed to her that many decisions there were being taken on the basis not of facts but of emotions. It was decided to devote attention to everyone immediately; as a result, people continued to live in the most contaminated areas—up to 140 curies of cesium—for many months and even years. What they should have been done was to immediately divide the area up in terms of contamination density. And to start providing assistance in the dirtiest areas. Had this been done, the millions and millions of rubles allocated “for Chernobyl” might not have been wasted.

We have also learned that the Chelyabinsk experience could have been used in Chernobyl in at least the following areas:

- **decontamination:** The workers should not have simply used excavators to load the soil into trucks; first they should have covered it with a layer of “clean” soil and used tractors to shovel it into trenches, thereby preventing radioactive dust from being thrown into the air;
- **extinguishing the fire:** They shouldn’t have dropped sandbags from helicopters, thereby throwing more dust up over the surrounding area; rather, they should have waited for the fire to burn itself out;
- **protecting people:** They shouldn’t have needlessly put soldiers on the roof of reactor No. 4, and at the very least they shouldn’t have sent patients from FIB-4 to help in the cleanup; after all, those people already had a heightened dose, and any additional exposure would have unforeseeable consequences;
- **resettled populations:** People should have been allowed to choose for themselves whether to leave or not; for some old women, the psychological strain was much more dangerous than the radiation threat.

And how was the situation handled in the 1950s?

First, as the directives required, all the men were gathered in the village center and an announcement was read: An accident had occurred at the chemical plant, and so on and so forth, and all your livestock must be destroyed. Immediately after that two men carrying machine-guns started off through the village. Short machine-gun bursts, bellowing cattle as they were being slaughtered, squawking poultry.

The women were the first to protest. A delegation of them set off for the main official in charge of dealing with the accident. They asked for permission to slaughter their steers and cows themselves. The official sighed and...consented.

It had seemed as though the physicists had foreseen everything: destroy the animals, appraise the value of the housing and all their goods and chattels, then build new houses in a “clean” area, and finally move the stricken villages one by one.

But when the subject of resettlement came up, the men dug in their heels. The detailed plans failed to take into account the pot-bellied samovars, the mothers’ worn padded coats, the crosses on fathers’ graves in the cemetery. It became necessary to concoct something about mysterious sicknesses and terrible suffering in order to persuade the women to grab the children up in their arms and flee the village.

Halfway on their journey, the people came upon the “clothes-changing points.” Piles of underclothing, brightly colored suits purchased by the [napartachivshevo—??] nuclear plant. But here too a fiasco ensued. The same padded jacket had to be changed 10 times.

Eighteen thousand resettled residents began a new life. It would be naive to think that every family received a normal home. And even more naive to think that everyone who should have been resettled was. Many were left to spend the winter in temporary millboard shelters, or even forgotten for a few decades. But even those who were lucky enough to receive a normal house with a shed were not fated to start living a normal, “preaccident” life. They were mowed down by disease and died out one by one, because in their new areas, who was there to help if something should happen?

We are going to list only the experience we still have time to borrow, now that the secrets have been lifted.

- It is essential to find ways to make early diagnoses of tumors using means other than x-rays, which entail additional radiation.
- Residents of contaminated areas cannot be allowed to donate blood.
- Even according to the “35-roentgen equivalent concept” that is the subject of so much controversy, a person can receive up to .5 rem per year **equally throughout his lifetime**; but if he receives 10 rems one year and 15 the next, and then the rest is added—excuse us, but this is juggling with the figures.
- It is essential to set up a hemotological service based on existing data: An expected increase in the incidence of leukemias in “Kyshtym” was recorded

between the fifth and 20th years following irradiation; the maximum incidence was recorded at the interval of 15 to 19 years (without a doubt, these data must be adjusted with the Chernobyl situation).

We've read a great deal of "nuclear" literature and it all says the same thing: There are no medical data on the effect of small radiation doses over a prolonged period of time. But in fact, there are such data! Not a lot, and the research must continue, but there are some data! It has been simply impossible to obtain them experimentally anywhere else in the world except "Kyshtym."

There is also experience in the agricultural use of "slightly contaminated" areas.

The Experimental Scientific Research Center has now been operating in the preserve established on the site of the eastern Urals radioactive fallout pattern for 30 years.

#### **The Research Center's Recommendations:**

- Potatoes can be grown in areas where the contamination level does not exceed 10 curies per square km, provided several cm of soil are removed first.
- The "dirt" accumulates only in the potato skin. Therefore, the potatoes, like other vegetables from contaminated fields, must be cleaned very thoroughly.
- Fish taken from a contaminated river (lake, pond) can only be fried. Under no circumstances can it be boiled, because the radionuclides accumulate primarily in the bones.
- The same applies to animal meats.

The secrecy has been lifted from virtually all these findings. When the Japanese heard that we have research on the effect of small radiation doses, they promptly made their way to Chelyabinsk any way they could. Mira Mikhaylovna Kosenko has flown to Japan twice and there delivered the first report on the FIB's projects.

But in our country, despite the fact that the medical findings have been sent to the national commission on radiation protection and to almost every scientific journal, they have yet to be published.

#### **How Could Chernobyl Help Kyshtym?**

People here are very offended. Offended because a decision was taken to provide benefits to the victims of Chernobyl, while nobody has thought about the victims of Kyshtym. Despite the fact that they have lived side by side with disaster—and a no less serious one—for several decades now.

To tolerate evil is to excuse it. Could this be the solution to the riddle of what happened to the Chernobyl funds received by tolerant bureaucrats?

Meanwhile, people continue to deluge visitors with the question: Why hasn't life gotten any better for us? In any case, this is what happened last year in Chelyabinsk Oblast, which, by decision of the Russian Council of Ministers, received an appropriation of 90 million rubles.

Hence the lesson of the funds allocated for Chernobyl could be very useful to this area.

Two years ago, officials of Chelyabinsk, Sverdlovsk, and Kurgan oblasts began making calculations for the first time: how much of what should be invested where. This resulted in a long list of construction materials and medical and industrial equipment. Taken together, all this was meant to convince Russian and union authorities that 90 million rubles was just a drop in the bucket.

The chances for success increased considerably following the visit to Chelyabinsk Oblast by B. Yeltsin during his election campaign. Later, as President, he ordered the Council of Ministers to study the question of declaring the rayons afflicted by the Kyshtym accident a national ecological disaster area. A decision to this effect is expected any day now.

But here's where the danger lies, in our view. It is clear that for the next several decades, the local authorities will be hostages to nuclear production. Because the Mayak enterprise alone requires enormous funds—to vitrify wastes, to drain "glowing" swamps and lakes, to damn the strong-tium-contaminated rivers, and to bury their cesium-contaminated banks. And it is essential to do this, because the contamination is spreading—through ground waters and through damns that are losing their sorption properties. And there's no one else to do this except the specialists from Mayak.

But regardless how many millions can be wrested from the Russian government, it will not be enough to solve the problem of radioactive wastes. This is why it is important that the medical and social problems of the people victimized by the atomic race be included in the program as a separate line item.

Chernobyl was unable to learn from Kyshtym's mistakes. But can Kyshtym benefit from even a small part of what Chernobyl has learned at the cost of so much suffering?

#### **In What Ways Will Kyshtym and Chernobyl Not Be Able to Help Each Other?**

The problem, no doubt, is not even in the fact that it has so far been impossible to compel our state to shift even a few funds from one budgetary "pocket" to another. Even if when we talk about the bulging pocket (the military one) and the half-empty pocket (the medical one). Nor is it in the fact that about 90 percent of the Chernobyl emissions consist of cesium derivatives.

It's all simpler and more dreadful at the same time. By sheer coincidence, Chernobyl became a national tragedy. It's just that the time was such, and the new policy mandated that the accident be discussed, albeit in hushed tones. The whole world learned about Chernobyl, and no one can count the number of commissions that have passed through the checkpoint of the "zone" over the past six years. Nobody knew about Kyshtym for 30 years.

True, a lot of commissions went to Kyshtym too. They drew up their conclusions and compiled their thick reports. It's just that later, those reports were marked with the purple stamp "top secret."

Two years ago, Mayak specialists did some calculations. It turns out that total rehabilitation of the contaminated areas—and only those adjacent to the enterprise itself—will take 67 billion rubles (67,000,000,000) rubles. And when we take inflation into account and the fact that no one will give you more than 10 kopeks for a Soviet ruble, the fact that the oblast construction industry, its desire notwithstanding, couldn't put even half a billion rubles to use annually, and, finally, the fact that the area of the Eastern Urals nuclear fallout pattern is several tens of times bigger than the zone, it becomes clear that nobody could provide such a sum today.

And yet the problems, mind you, might never have happened had an attempt not been made from the very outset to portray nuclear-generated electricity as the very cheapest—an excellent argument in favor of the nuclear power industry. This is why the waste problem was never included in its cost. Yet if we are to believe the American journal *WORLDWATCH*, which in May of this year published calculations made by Pentagon experts, the manufacture of one pound (880 grams) of weapons-grade plutonium produces more than 300 liters of highly radioactive wastes containing hazardous chemical substances, more than 60,000 liters of wastes with low- and medium-level content of hazardous substances, and 2.5 million liters of contaminated cooling water.

Had someone begun back then to earmark a percentage of nuclear profits for dealing with the problem of radioactive wastes, maybe the question of processing and burying them wouldn't be so acute today.

For the first time in its more than 40-year history, Mayak finds that no one needs it. Of course, the trains still come carrying spent fuel from our own water-cooled reactors and from eight "friendly" countries, and also from nuclear submarines. But the country no longer needs the plutonium that motivated the entire existence of Mayak.

And Chelyabinsk-65 itself is gradually getting used to its new way of life, becoming a normal city of 85,000 people with a full set of provincial problems: Young people are moving away, there's not enough transport, and about the only thing you can buy without ration cards is a loaf of bread. None of this would be so terrible were it not for—Mayak's storage facilities hold 100 "jars" containing highly radioactive wastes, each with a volume of 300 cubic m. Every one of them, say officials of the oblast State Security Committee, could rupture; The cooling system has deficiencies; power outages at the Mayak enterprise are not infrequent; and an autonomous power generator—a diesel engine—was installed only two years ago. During this time, there have been almost 10 instances in which "jars" became overheated. This is exactly how Kyshtym began in 1957.

Karachay Lake (efforts to "close" it have been under way for a quarter of a century now—it's being filled in with dirt and will eventually be covered over with concrete), is still

in a state of heightened combat readiness. Thank God there haven't been any windstorms—no rarity in Chelyabinsk Oblast. In the past decade, two of them passed by the lake by sheer luck, leaving several-kilometer-long swatches through the surrounding forests.

Mayak is truly in a predicament. Money to restore the area can be obtained only by concluding commercial contracts for processing nuclear fuel from abroad. Three years ago, the Ministry of Atomic Power was going to try to reach agreements with Britain, France, and Germany under which we would process all components, including wastes, and return them to the customers, but the deal fell through. Today Mayak believes quite seriously that such a contract with Germany will allow it to earn 1 billion marks in the first year alone. And it thinks that by building a nuclear station it could solve nearly all the problems of contaminated lakes and rivers within 10 years.

That's probably all very true. But a freeze was put on construction of a station, and it will probably never start: A new design is needed and more money. And the importation into the country of radioactive wastes—and from Germany no less—is something that no Supreme Soviet would ever authorize, let alone the Chelyabinsk Soviet. Suffice it to recall that of 100 old burial sites left over from the 1950s, 25 have yet to be found.

On a larger scale, Chelyabinsk-65 is just one point on the oblast ecological map—albeit the dirtiest. Of the 10 closed cities that produce nuclear weapons in the country, three are within the oblast. And a list of metallurgical plants that operate at the ecological limit would have more than a few entries—in Karabash, Ufaley, Magnitogorsk, Satka, Zlatoust, and Chelyabinsk itself.

Meanwhile, you could count the ecological success stories in the oblast on your fingers: At the insistence of the oblast State Security Committee, filters have been installed on a couple of plants in Magnitogorsk and Chelyabinsk, and five old reactors at the Mayak plant have been shut down, although the Ministry of Medium Machine Building tired to get permission to continue operating them.

#### Will There Be a Garden-City Here?

The preserve on the site of the Eastern Urals radioactive fallout pattern is relatively clean. Thirty years ago, soil contamination was measured in the thousands of curies, but today the figures on the cardboard signs along the road are of an order smaller—400, 800... The radionuclides have gone into the soil to a depth of dozens of cm.

However, for the time being it's still better that people not come around here. A large bird—a rare species of eagle on the endangered list—soars above the untended fields and the horribly misshapen birch trees. The preserve is said to be one of the country's finest.

For about the next 30 years—that's how long it will take for the radioactive elements to break down in the soil and water—no one is going to disturb the preserve. And God forbid that it becomes the only oasis on an Earth dotted with smoke-belching chimneys.

Every person should leave behind at least something good.

## Environmental Legacy of Novaya Zemlya Test Site Scrutinized

### Unsafe Testing Practices Recounted

92WN0090A Moscow KOMSOMOLSKAYA PRAVDA  
in Russian 31 Oct 91 p 4

[Article by V. Karkavtsev: "We Threatened More Than the Swedes: Novaya Zemlya Test Site Closed by Order of President Yeltsin"]

[Text] Last year I was about to fly from Arkhangelsk to Novaya Zemlya for a whole month. This happened as follows. "Maybe we will fly tomorrow," said USSR Deputy Minister of Defense, Yuriy Alekseyevich Yashin. My colleagues and I were in the editorial office in boots and sheepskin coats. We sat by the telephone and waited for the cherished hour. By dinner, it had been called off: The weather was bad again. The next day everything repeated. Since at the time none of the journalists had been on the nuclear archipelago yet, we kept our "deal" with the deputy minister strictly secret: Heaven forbid that other publications should catch wind of it. It was hardest of all to hide the boots and coats, since spring was already beginning in Arkhangelsk.

Colonel-General Yashin's month-long stay was explained simply: He was a candidate for people's deputy of Russia. It fell through in the elections all the same. So we were not waiting for the weather, since special airplanes flew repeatedly to Novaya Zemlya over this month. After Yuriy Alekseyevich had returned to Moscow, it was unexpectedly discovered that he had promised to show the secret archipelago to at least ten other Arkhangelsk newspapers.

For the deputy minister, head of the country's missile and space industry, Novaya Zemlya was a trump card. Still, he did not show it to the journalists, keeping it in his hand, as it was a question of fulfilling his aims to become a deputy. Now, a year and a half later, after some information on the nuclear test site has accumulated, it is clear why we were not taken there.

So, the Kazakhs stood up for Semipalatinsk. While nuclear warheads were exploded there, the Novaya Zemlya test site remained in the shadows, like some kind of inoffensive variant. To put it lightly, this is not quite so. We sent radiation into the stratosphere with our mightiest explosions in the air, thus tying the entire population of the Northern hemisphere with nuclear bonds. And here at home... In the summer of 1962 in polar Amderma, Gosgidromet registered a density of radioactive fallout, exceeding background values by a factor of 11,000.

I have always wanted to enliven the scattered information and inadequate figures about our feats in Novaya Zemlya with eyewitness accounts. Where are these people, are they alive, how do they feel? Silence. And then Anatoliy Pavlov, an associate at the "Morfizprivor" Institute in St. Petersburg and a "man from the epicenter," spoke for the first time in CHAS PIK. In 1958 he was serving his term in the post of cypher clerk and in breaks between classifying

cheerful communiques to the party and government about the successful tests, he observed these very same tests in direct proximity.

"The entire time of service, not once did I ever see either protective cloaks, or dosimeters. One day a radioactive cloud passed through Belushye toward Amderma. For several days the garrison went about in gas masks and ate dry rations. It was forbidden to take water from the lakes. After serving, I said that I had served on a minesweeper. That is what they taught us to say. Not long ago, I corresponded with many people from Novaya Zemlya. Some have died, and many of them have had poor family relations: They have divorced, taken to drink, or fallen seriously ill. At the end of 1970, it was discovered that I had skin cancer. When they asked at the oncological institute whether it had to do with radioactive substances, I was forced to answer 'no.'

Perhaps Anatoliy Pavlov is unfamiliar with the speech by V. Mikhaylov, deputy minister of nuclear power engineering and industry, at a session of the Kazakh Supreme Soviet in June of this year. Professor Mikhaylov talked about new ministerial programs, in which "special attention will be devoted to revealing the people who have suffered from the atmospheric nuclear tests of 1949-1962." The assurance that premier V. Pavlov was ready to support these programs personally also inspired optimism. All very well, it seems, except that many of these people will have to be "revealed" via funeral bureaus.

The ministerial "special attention" is supposedly being applied to the small peoples, who have lived along the shores of the Arctic Ocean since time immemorial. In any case, today Moscow is already prepared to issue recommendations on what they should eat and when. Scientists from the VPK have calculated, for instance, that the half-life of cesium from the body of a Northern reindeer is 20 days. Why have they done this? The formula is simple. Lichen grows on the tundra. It grows for a long time, accumulating radiation within itself. However, the silly reindeer do not understand this and eat lichen exclusively all winter. Summer comes and grasses grow, which simply do not manage to collect radioactive contamination in a month or so. So, having roamed about the grass, the reindeer are free of cesium by autumn: Its concentration drops by a factor of 5-10. Then, the military specialists claim, it is possible to eat reindeer meat. However, forgive me for asking an immodest question: What are the native peoples supposed to eat the rest of the year? After all, the lake fish, ptarmigans, and even the snow with which the reindeer herders fill their pots and teakettles, concentrate the test site's terrible energy within themselves.

Statistics show that oncological mortality among the native Northern peoples is higher than on the average in the country by a factor of two. Cancer of the esophagus is encountered more often here by a factor of 15-20. Essentially, the 70,000 people settled along the shore are on the verge of dying out. The sad international competition to accumulate radioactive substances is as follows: The content of strontium-90 in the bodies of our reindeer herders exceeds the norm by a factor of 20-40.

Our nuclear experts love to compare the Novaya Zemlya test site to Nevada. Over there, they say, they have only 100 kilometers to Las Vegas, but here it is more than 1,000 to Arkhangelsk. And they have soil, while we have rock. However, here is a warning from Finland's MID [Ministry of Foreign Affairs]: "The shock wave of a nuclear explosion may lead to the appearance of cracks in the island's slate layers, through which the emission of radioactive substances into the atmosphere may be possible."

The dialogue that sprang up at a meeting of experts from Finland and the USSR, held in Moscow this February, seems noteworthy to me in the sense of "suitability or unsuitability." Having heard our experts' statement to the effect that the seismic situation at Novaya Zemlya is favorable, the Finnish representative Tapio Ryutoma marked:

"The natural seismicity here from 1977 to 1986 appeared in 4 earthquakes rating from 4.6 to 6.5 points on the Richter scale."

Obviously not expecting such details, our deputy minister B. Mikhaylov tried to put a stop to the question:

"I found out about this for the first time in your report... Give us the data, we will take a look."

They looked. In an April report at an international symposium in Ottawa they were forced to verify: Yes, Novaya Zemlya does shake. And it does so fairly significantly: 4.4 points were recorded here on 1 August 1986.

The military is in no rush to give away its secrets. Let us recall last year's "Greenpeace" breach, when four bold spirits landed on the archipelago and studied a deserted test shaft. Their dosimeters at that time showed a hundred-fold excess of radiation level over the background value. Their eyes beheld ugly mountains of trash, left by the tests. The military does not want to show us such a Novaya Zemlya.

The military does not like it when someone else accomplishes a breach. Yet, to give them their due, they do know how to neutralize them. Last year's plan by the Arkhangelsk Oblast Soviet to restore soviet power on Novaya Zemlya, eliminated there since 1954, was also an attempt at such a breach. I remember the precise decisions of that oblast session: "We should finish the organization of an island soviet of people's deputies before 1 May 1991..."

The plans were smashed over the granite hardness of the VPK [military-industrial complex].

Incidentally, even a joint trip to the archipelago on O. Baklanov's airplane was undertaken. The deputy chairman of the oblast soviet, Viktor Shiryayev, recalls it unwillingly:

"They resolved their business there, and looked at us as though we were bugs. They did not even let me come near the government salon."

A representative of soviet power, who was on territory subordinate to him, is saying this...

Finally, about moratoriums: They are various, it turns out. Judge by the stern letter sent to the editors of Arkhangelsk newspapers: "We deem it necessary to inform you that RSFSR VS member A.H. Butorin can examine these issues (about the Novaya Zemlya test site—V.K.) more responsibly and objectively than USSR and RSFSR deputies... We insistently request that you abstain from publishing materials, whose authors do not have objective information with regard to the Northern test site. We ask that you send these materials for the examination of A.N. Butorin, who has all the necessary information, making it possible... to determine the expediency of their publication." This friendly note was signed by the two big leaders of nuclear affairs, V. Mikhaylov and G. Zolotukhin.

My remarks, I fear, might not go through said expert analysis.

### Effects to Last 5600 Years

92WN0090B Moscow KOMSOMOLSKAYA PRAVDA  
in Russian 31 Oct 91 p 4

[Article by V. Yakimets, candidate of technical sciences, presidential advisor, "Nevada-Semipalatinsk" Movement: "I'll Show You!" Khrushchev Shouted at the UN. And Soon He Did—With 58 Megatons"]

The Novaya Zemlya test site, given a "voice" in 1955, starting with the 58-ton bomb, carried on the tradition of Semipalatinsk. The overwhelming majority of the USSR's powerful, open nuclear tests were performed precisely here. There was a massive development of second-generation, thermonuclear (hydrogen bomb) weapons.

On 30 October 1961, the planet's atmosphere received the most terrible blow in the entire history of nuclear tests from a single nuclear explosion, the full power of which is estimated at 58 megatons.

The total power of explosions in the atmosphere over Novaya Zemlya in 8 months of 1961-62 was about 300 megatons, which surpasses the sum total power of all atmospheric tests by all other nuclear powers during the period of above-ground explosions from 1945 to 1980.

The power of a series of 12 explosions in October 1961 and a series of 10 explosions in September 1962, each in itself, was almost equal to the power of all atmospheric explosions performed by the U.S. over the entire period of open-air tests from 1945 to 1963...

After the treaty forbidding tests in the atmosphere, underwater, and in outer space was concluded in 1963, data were published in the United States on all open nuclear explosions.

To this day, we do not have complete information at our disposal about the open explosions, produced in our country from 1949 to 1962 at Novaya Zemlya and in Kazakhstan.

As a result of an analysis, done by the UN Scientific Committee on the Effect of Nuclear Radiation, of the consequences of all atmospheric explosions, it was ascertained that these explosions have created a global radiation



burden on the population of the Earth, equal to four annual norms of the natural background or about 30 million man-Sieverts (20 million man-Sieverts causes one fatality as a consequence of oncological disease). In other words, more than a million lives have already been laid on the nuclear altar of the "cold" war as a result of tests in the atmosphere.

About 90 percent of the overall radiation background during above-ground tests of a thermonuclear weapon is caused precisely by the radioactive isotope carbon-14, and only about one percent—by the more frequently mentioned cesium-137 and strontium-90... Yet this means that the basic consequences to the health of the Earth's population will manifest over the course of the next 5,600 years. A. Sakharov was the first to speak of this. The June 1958 issue of *ATOMNAYA ENERGIYA*, published at that time for restricted circulation, contained his article on the possible consequences of the accumulation of radioactive carbon in the biosphere as a result of atmospheric explosions. By Sakharov's calculations, an atmospheric explosion of one megaton causes the death of about 10,000 of our descendants over 5,000 years from various cancerous diseases and disturbances of the genetic and defensive immune systems of an organism. A.D. Sakharov brought these estimates of his, as well as a number of other arguments for the complete cessation of nuclear tests, to the attention of N.S. Khrushchev, but was turned down.

Does this mean that not only the physicists and specialists, who prepared the tests in 1961-62, knew about the fatal consequences of open tests? One wonders how events would have turned out, if Sakharov's estimates had appeared in the world press in time? Perhaps the insane eight-month nuclear bacchanalia might have been stopped, before it ever began?

**Yakutia Declares Ban on Nuclear Activity**  
*PM2511155391 Moscow ROSSIYSKAYA GAZETA*  
*in Russian 22 Nov 91 First Edition p 7*

[Correspondent Nikolay Belyy report: "Yakutia Is a Nuclear-Free Zone"]

[Text] Only recently has the secret of the Land of the Soviets' third nuclear test range (apart from Semipalatinsk and Zapolyarnyy on Novaya Zemlya) been revealed. It operated in the high latitudes of Yakutia. Twelve nuclear explosions were staged there.

A session of the Yakutia parliament recently passed a resolution declaring Russia's largest republic a nuclear-free zone. Henceforth the production, siting, storage, and testing of nuclear weapons and their components, the use of nuclear weapons for peaceful purposes, the development of fissionable material, and the manufacture of radioactive products there are banned.

**Expert Alleges Soviet Nuclear Dumping in Arctic**  
*London THE DAILY TELEGRAPH in English*  
*26 Nov 91 p 8*

[Toby Moore report: "Ships 'Dumped Nuclear Waste'"]

[Text] Soviet ships dumped radioactive waste at sea for at least 15 years after signing a treaty outlawing the practice,

and may still be doing so, a Russian scientist said in London yesterday.

Mr. Andrey Zolotkov, a deputy to the Supreme Soviet and senior engineer with Atomflot, which runs the Soviet nuclear-powered icebreaking fleet, said the dumping took place off the island of Novaya Zemlya in the Arctic at least between 1964 and 1986.

His disclosure will embarrass Soviet delegates to a meeting in London this week of signatories to the London Dumping Convention, which governs waste disposal. Soviet authorities have consistently told the International Atomic Energy Agency they have never dumped radioactive material in the oceans.

Dr. Dominique Calmet, of the agency, said it was demanding an immediate explanation of what was happening and viewed the information as gravely serious.

Mr. Zolotkov says that previously secret files and ships' logs showed that at least 12 ships dumped 10,250 cubic metre containers of primitively packaged radioactive material in waters no more than 1,100 feet deep. Other radioactive waste was dumped in the Barents Sea.

**Demographic Trends, Pollution Threaten Ukrainian Gene Pool**

*92WN0110A Kiev HOLOS UKRAYINY in Ukrainian*  
*11 Oct 91 pp 6-7*

[Article by Liubomyr Pyrih, people's deputy of Ukrainian SSR, chairman of subcommission on the preservation of the nation's gene pool and protection of the population against dangerous ecological factors, external member of the Academy of Sciences of the Ukraine and professor: "Sounding the Alarm"]

[Text] The gene pool: this term is not very new, but so far it has not made its way into encyclopedias or dictionaries of foreign words. It is new, but (or maybe, therefore) fashionable. The term has been brought into wide currency not by scientists, but by publicists and community activists. A few years ago, for the first time, this term began to be heard at meetings and to appear in articles, and after the Chernobyl catastrophe, it immediately became understandable both to those who used it and those to whom it was addressed. Everybody understands that the concept of "the future of the gene pool" refers to the future of our coming generations, the health and length of life of our descendants. The gene pool is the basis of evolution, the apparition of living species, and within a given species—its perfection. The impoverishment of the gene pool is the narrowing or shortening of biological memory, and thus primitivization and impoverishment of evolution.

It is correct to speak about a gene pool of all living things, which have been linked to each other for millions of years by an interdependence which is more or less evident. And that is why in most developed countries the alarm is being sounded, steps are being taken and programs are being elaborated for the preservation of those thousands of



plants and hundreds of animals which are under threat of extinction. This is not just a matter of establishing parks and preserves, but also of conserving genetic material which will make it possible to recreate extinct species of fauna and flora and thus renew the richness of our nature.

Making a distinction between the animal and plant and the human gene pools is artificial in terms of the dialectical understanding of the world of nature as a single whole, but in terms of elaborating specific programs for their preservation, at the initial stages this cannot be avoided. Scientists—botanists, zoologists and cryobiologists—are beginning to elaborate appropriate programs. A year ago, the presidium of the Academy of Sciences of the Ukrainian SSR passed a resolution "on the ecobiological basis for the establishment of a low-temperature gene bank of the Ukrainian SSR." But presently under threat is the human gene pool, the gene pool of the people of the Ukraine, and it must be saved first of all. There exist indicators, apart from special scientific-genetic ones, which make it possible to judge the present state of the population's gene pool and predict its dynamics for the future. First of all, these are some demographic and community health indicators.

Over the last five years, the birth rate in the Ukraine has declined by 18 percent, the mortality rate has increased by nine percent, natural population growth has declined from 4.4 to 0.5 per one thousand population, that is, by 89 percent. And presently, the lifespan is the lowest in the USSR. With regard to population growth, the most critical situation (mortality rate surpasses birth rate) is found in the Kirovograd, Poltava, Sumy, Kharkov, Cherkassy and Chernigov oblasts. The situation is catastrophic in rural areas, where the population is not replacing itself, where, in comparison with the republican mean, the birth rate is lower and the mortality rate higher. This issue merits separate discussion and assessment by demographers, economists and medical specialists. It is a fact that urbanization is a normal process in all developed countries. Here it elicits panic, because there is nobody to work in the rural areas. But if we take into account the fact that in the United States only about one-tenth as many people are engaged in agricultural work as here, then it becomes obvious that the issue is not one of numbers. There is also the fact that in the present circumstances, the village continues to nourish the spiritual, nationally-Ukrainian element, and with the death of the village comes increased denationalization of Ukrainians. And during the last century we have already had two world wars, the Civil War, famines in 1923, 1932-33 and 1947, repressions and massive elimination of the most socially, politically and culturally active people, all of which interrupted the succession of generations, broke the links of transmission of both spiritual and physical, genetic, baggage. And finally, there was Chernobyl. This almost uninterrupted chain of misfortunes, physical and spiritual degeneration, has led to the fact that in this century the number of Ukrainians in the Ukraine has increased by only 177 percent, while Russians have increased by 472.3 percent, Byelorussians by 360.3 percent and Armenians by 387 percent.

Without getting into the social, demographic, economic and purely human aspects of this, let us point out that from

the point of view of geneticists, an extremely unfavourable development is the rise of the mortality rate of Ukrainian men of working age, the shortening of their life span, the increase in the gap between the average lifespan of men and women. In the mid-1960s, this gap was only 3.7 years in the Ukraine, which in comparison with the countries of Western Europe (6 - 7.5 years) testified to a good genetic state; this figure was considered one of the best in the world. In the span of one generation (by the mid-1980s), this gap has grown to 9.6 years and has become one of the worst in the world. Geneticists believe that men have been assigned the biological role of ridding the population of genetic deviations that are absolutely unacceptable for the species, the function of a kind of genetic filter. That is why we find everywhere a lower average life span for men than for women, whose numbers determine the size of the population, which is biologically determined and justified. But the shortening of the male life span, especially in comparison with that of females, to the extent that we see here testifies to an excessive mutational load, to the overloading of the population's genetic guard.

Undoubtedly, we can attribute to biological laws the proven fact that over the last 20 years, the number of viable sperm in men has decreased from 70 to 30 percent.

In the last two years, child mortality in the Ukraine has been at the lowest level seen in any decade, and one of the lowest in the USSR, although still one-and-a-half to two times higher than in certain developed countries. Fine and good if this is really so. But the tendency to "pad the numbers" applies to these statistical figures too. I am aware of cases where verification revealed "errors" which reduced mortality figures by half.

In addition to the decline of the birth rate and the relatively high child mortality rate, we have an increase of infants of abnormal weight and with congenital defects of organs and systems and congenital illnesses, as well as an increase in the number of deformed babies. I stress this in particular, because children personify in the most obvious way the state of the population's gene pool and make it possible to predict its future.

It is unrealistic to expect a more life-worthy generation from our women, whose social role has been symbolized by the concrete sculptures of masculine, muscle-bound creatures that we see in parks and squares, the figure with the sickle, "equal to any man," in the famous Mukhinaya sculpture. Out of 12.4 million women of child-bearing age, close to 11 million are employed in the national economy; 70 percent of women workers in agriculture and 40 percent of women workers in industry are engaged in heavy labor. Close to 25 percent work in harmful conditions. Women aged 20 to 29 make up one-third of all the people working night shifts. What kind of descendants can one expect from women who are so physically tired and nervously exhausted?

One of the convincing proofs of genetically-rooted lack of harmony is the increase of spontaneous abortions, the frequency of which has grown recently by four-six times.

Close to 40 thousand women per year do not complete their pregnancies. Research has shown that in Zaporozh, there are five times as many mutationally-induced spontaneous abortions and twice as many congenital defects in infants as in relatively-unpolluted Simferopol. And in catastrophically-polluted Rubizhne, in Lugansk oblast, the incidence of cancer in children is eight times higher than in the republic as a whole.

If we take a standard measure of chemical and radiation exposure and the strength of its effect on the genetic material of the population, then over 35 years, the inhabitants of Zaporozh have received 100 behrs, and of Mariupul, 180 behrs. Let us recall with what enthusiasm and even sarcasm the claim that an exposure of 35 behrs over 70 years was permissible was criticized (and justifiably so!)

As to the Chernobyl tragedy, among the people who were evacuated, those dealing with the effects, those who live in the area of strict control, the incidence of illnesses in general has increased, and among children, there has been a significant increase in anemia and thyroid gland problems. But these are only the "blossoms"; the "fruit" in the form of cancer and, especially, genetically-induced abnormalities, is yet to come. The declining level of immunity means a likely increased sensitivity to factors causing infection and a lowering of the general resistance of organisms to the effects of harmful factors, including those causing cancer. People will age more quickly.

Again we have proof of the cause, of which we are all aware, of our mutational-genetic problems—the catastrophic state of the environment.

Thanks to the progress of civilization, we have made many gains in our battle with illnesses and mortality, but we have always had to sacrifice something. We have now reached the point where the sacrifices that have to be made in the name of technical progress exceed the benefits obtained. Let us stop! In our everyday existence, we encounter about 63,000 different chemical compounds discovered by mankind. Almost half of them are mutagenically active. Guilty in this regard are the metallurgical industry, the "peaceful" use of the atom, pesticides, electromagnetic radiation, modes of transportation, etc. Also negatively affecting the human genetic apparatus are some medicines, even drinking water which has not been sufficiently purified, and virus infections.

Close to 20 million tonnes of industrial waste are emptied into the air of the Ukraine; into the rivers and reservoirs on Ukrainian territory, close to a billion cubic meters of polluted waters are discharged every year; in the reservoirs one-and-a-half billion tonnes of solid wastes collect. In the republic, 56.9 percent of the land is under cultivation, which is three times the proportion of cultivated land in the United States. The Ukraine, which comprises 2.7 percent of USSR territory, receives one-quarter of all its industrial pollution. The Dnieper and Dnister rivers are turning into cesspools; the Black Sea is suffocating.

The Ukraine is heading for an ecological abyss, crossing the line to genetic catastrophe; her population faces the

threat of degradation and extinction. If the present tendencies in the dynamics of mainly ecologically- and socially-induced mutational processes continue, geneticists predict an avalanche-like genetic catastrophe in 100-200 years.

Medicine in its present form will not be able to renew the gene pool and deal with the mainly genetically-induced illnesses, as drugs may serve to increase the inertia of mutagenic processes. That is why it is essential now to raise the issue of elaborating methods of genetic therapy and preserving sex cells in order to be able to reproduce healthy generations in the future.

The parliament of the Ukraine has declared the whole republic an ecological disaster zone. Structures have been put into place within the Supreme Soviet, the Cabinet of Ministers, which are supposed to deal with improving the ecological situation.

Let us pray that the results of their activity will be equal to the large number of these structures and the large membership of each of them. Some work has also been done towards organizing a genetic service in the republic. Medical genetic centers have been established in Kiev, Lvov, Kharkov, Kryvyi Rog, Simferopol, Donetsk and Odessa, which are supposed to give specialized assistance to the populations in the given regions (close to 8-10 million), there are 20 oblast and 40 inter-rayon consultative offices in medical genetics, and personnel are gradually being trained in the areas of pure and applied genetics. At present, applied genetics institutions are beginning to work towards the timely detection of inherited pathology and congenital developmental defects. The goal is to prevent or interrupt pregnancy in cases of occurrence of Down's syndrome (every year, 1200 - 1400 such children are born in the republic), phenylketonuria (close to 200 newborns per year), cystic fibrosis (about five percent of the population of Ukraine are carriers of the genes of this illness). Without getting into the moral and human aspects of this problem, it is enough to look at the purely economic ones: according to approximate calculations, for the republic to provide medical treatment to people with inherited diseases and congenital developmental defects, to care for such children for the average length of their lives (10 years), close to 25 million rubles per year are required. And an increase in the number of such children is predicted.

The time has come to take a broader approach to questions of medical genetics, link them with the general problems of the gene pool of the Ukrainian population, with the causes of its catastrophic state, and to immediately elaborate ways and methods for eliminating those causes and correcting their effects.

We are struggling for civil and political freedoms, for material well-being, for national rebirth. But if in the coming decades many of those who are here today will not have children or grandchildren, if the next century is to give us physically and spiritually damaged descendants, then for whom and in whose name are we struggling? I am not inclined to give priority at present to the cause of clean air and healthy future generations over the political

struggle, but only because without our political and economic independence, without complete sovereignty, neither we nor our descendants will drink pure water, eat clean food, be rid of the fear of physical and spiritual degeneration. And for that reason, in the vortex of our political quarrels and passions, let us not be shortsighted, let us not lose sight of the principal goal—the physical and spiritual preservation of the nation in the direct biological sense.

A firm step towards meeting that goal was the open letter to the Chairman of the Supreme Soviet of the Ukraine, L. Kravchuk (HOLOS UKRAYINY, 07.03.91), which was signed by eminent scholars and people's deputies. A certain time after that, the Presidium of the Supreme Soviet approved a proposal that had been made in the letter regarding the establishment of a Republican Program for the Preservation of the Gene Pool of the Ukraine and the organization of a scientific conference on this issue under the aegis of the Commission on Human Health. There was also study of the readiness of various scientific institutions to participate in the elaboration and implementation of the Program; two coordinating meetings of representatives have taken place and now the final draft of the Program is ready.

The concrete tasks of the Program are to control the tempo and dynamics of mutational processes, taking into account the ecological situations existing in specific regions; elaborate preventative measures against cancer on the basis of studies of inherited tendencies and the effects of environmental factors; and optimize the provision of treatment and preventative medical-genetic care. Over 40 scientific research institutions of various medical specialties are expected to participate in the Program. Thus, the participants will include pediatricians, eye specialists, orthopedic specialists, neuropathologists, urologists, nephrologists, laryngologists, hematologists, oncologists, endocrinologists, community health specialists, toxicologists, radiologists, geneticists, immunologists, pharmacologists, pharmacists, gerontologists, as well as geographers, programmers, architects, chemists, biologists, botanists and other professionals.

Implementation of the Program requires a major organizational effort, and even more, financial support (hard currency allocations). At present, the Program is planned for five years, but nobody doubts that the need to continue and intensify its work will go on for several generations. Thus, from the point of view of the present, it is, unfortunately, eternal. A coordinating council has been established to direct the implementation of the Program and institutions have been designated which will elaborate their own "miniprograms," the selection of which will be based on competitive principles with the participation of a coordinating council of experts and scientists of the appropriate specialties. The draft Program is expected to be discussed at a joint meeting of the Commissions of the Supreme Soviet of the Ukrainian SSR on Human Health, on Ecology and Rational Use of Nature, on Women, Protection of the Family, Motherhood and Childhood, on the Chernobyl Catastrophe, and on National Education

and Science. Representatives of the ministries concerned will also participate in the meeting. After this, the draft Program for the Preservation of the Gene Pool of the Population of the Ukraine will be submitted to the Cabinet of Ministers.

The Program can be successfully carried out only if it is backed by legislation, so it is essential that laws be passed regarding health protection and working conditions. Also supporting the Program should be the laws already passed regarding the Chernobyl zone and the status of persons who have suffered in result of the Chernobyl AES [nuclear electric power station] accident, and environmental protection. I think that it is also essential that a law be passed regarding the preservation of the Ukraine's gene pool (in the global sense of this concept).

For now, on October 16-18 of this year, there will be a scientific conference on: "Health and the Reproduction of the People of the Ukraine," which has been called in order to inform the scientific community and the general population of the social-demographic aspects of the life of our nation and their medical-biological roots. Taking part in the conference will be the Ukraine's leading scientists in the areas of demography, community health, ecology, genetics and immunology. A particular feature of this conference is that its program is composed of papers commissioned from the most competent scholar in each area, rather than being based on open participation.

The demographic indicators will give an idea of how many of us there are, who we are, what we are like, why there are so many of us, why we are as we are and what can be expected for the future. Community health specialists will show what illnesses most threaten people at what age and of which sex and are causing us to live less long than we could and should and decline in numbers, and explain why such a demographic situation has arisen. Ecologists will reveal what threat to our health, our longevity and our descendants is posed today by the air we breathe, the water we drink, the soil from which we get our food and the working conditions in which we earn our living and repay our debt to society. Geneticists will show the present state of the human gene pool and its future in relation to the effects of various factors, especially ecological ones. Immunology, in particular, when combined with genetics and other branches of medicine and biology, is capable of assessing and explaining various patterns in the general spectrum and dynamics of the populations's health, and taking account of the present ecological situation, help to elaborate a general action strategy by scientists of various specialties for the elimination of the harmful effects of various factors on the health of people today and in the future, the prevention and correction of those effects.

Unfortunately, the conference program does not cover everything that relates to determining the population's health, improving it, and preserving the gene pool. Perhaps the most important aspect is the economic one. But the Economic Institute of the Academy of Sciences of the Ukrainian SSR did not respond to the proposal that it give a paper on economic support and economic guarantees for the preservation of the health of the Ukraine's population.

Also failing to respond was the Psychology Institute of the Academy of Sciences of the Ukrainian SSR, with regard to examining the problem of social psychology in the Ukraine in general, and specifically, the attitude of the population towards its own health and the understanding and degree of recognition by our society of human life and health as the highest value.

But we will hope that they will decide to join in the efforts as the program is carried out. I say this because I do not want to believe that among our scientists there are people who do not care about the future of our Ukraine. The guarantee of her independence is in the preservation and increase of the physical and spiritual strength of the people. Thanks to the public, whose voice has become stronger over the last few years, we are presently thinking about this. Let us now join our efforts together to work for the sake of future generations.

### **Poor Forestry, Agricultural Practices Harm Carpathian Ecology**

92WN0111A Kiev HOLOS UKRAYINY in Ukrainian  
17 Oct 91 p 11

[Article by Vasyl Tkachyk, geobotanical engineer, Ivan Franko Lvov State University: "How Have the Carpathian Mountains Grown Bald?"]

[Text] I have studied the Carpathians for many years. I know the enchanting beauty of the blue mountains, their joys and sorrows. Today, before our eyes, the Carpathians are growing bald, getting sick. One feels an urge to shout: people, stop!

Although it was only two or three centuries ago that people began to advance on the mountain summits, the Carpathian foothills have been inhabited for many centuries. And not "unsuccessfully." Of the former multi-tiered fir-oak and beech forests, today there are only sorry remnants. Already gone are the ancient yew groves and rye-grass meadow plains. On the verge of total destruction are the oak forests. It is now impossible to find a corner of nature in its primordial state.

For a long time, at least the marshes remained in an untouched state. But the twentieth century doomed most of them, too. Where once existed the numerous Great Dnister eutronic marshes, which were formed in conditions of glacial cooling, we now see sad landscapes of torn up turf-pits.

I saw with my own eyes the death of the marshes near the villages of Mayna, Voloshcha and Krukenytsia (Lvov oblast) and Piyllo and Nehivtsi (Ivano-Frankovsk oblast). And now in its death-throes is the famous "Turiv Dacha," the republican national preserve. Right outside the preserve's boundaries, a deep drainage ditch has been dug. Not far away, exploration teams have set up oil derricks, and running through the preserve's territory is an electro-transmission line. And how sad against the background of all these "achievements" of scientific-technical progress appears the sign with the inscription: "Turiv Dacha Republican Preserve. Protected by law!", which could only have been put up for mockery.

I will not discuss here the thousands of hectares of natural land that have been ploughed up. It is too bad with every year the amount of cultivated land is increasing, while the amount of arable land is decreasing. Most of the Carpathian foothills meadows are post-forest formations.

A large portion of them are fallow fields, that is, land that was formerly under cultivation and has now been returned to nature. Nature is thankful even for gifts like these, and she generously sows them with her rich variety of grasses. But even she cannot turn land that has been cultivated back to its primordial state. On these lands, there will never again flower orchids, *Gentiana L.* and lilies.

In 1977-79, I worked in the Ivano-Frankovsk oblast, at the Novytska high school. That is why I well remember the edge of the "Dubyna" nature preserve, which was in the vicinity of that village. Even then, traces of human activity were noticeable. But to some extent, it was intelligent activity, for hundreds of plants brightened there in every color of the rainbow—over 600 species in all. And among them were a few plants entered into the Red books of the USSR and the Ukraine.

Recently, I again visited that corner of paradise. And I could not believe my eyes. In the meadows, which in the past had been used for hay, herds of cows were grazing. Apart from *Poa L.* and weeds, it was difficult to find even one plant out of the rich kingdom of grasses that used to flourish here.

Unfortunately, senseless haycutting and grazing systems are being introduced more and more. And the widespread use of mineral fertilizers has long been a tradition, even in mountain meadows, and often also in forests.

The Carpathian branch of the Institute of Forest Management and Agricultural Improvement, in Ivano Frankovsk, for a long time even supported the study of the influence of mineral fertilizers on tree growth.

A tragedy for the Carpathians and adjoining territories is the change of river channels, entrenchment of river banks and massive extraction of gravel along river banks and even in river beds. Even on the banks of the protected Lymnytsia River, there is a big gravel pit.

I understand: the country is being built and many people do not have a place to live. But this should not bring harm to nature.

I have also spent time in the area of the village of Verbizh, which is not far from Kolomyia. In this formerly-unoccupied corner of nature, I saw the dug up and dirtied shores of the Prut River and its tributary, the Pistynka. Over several years, gravel was dug there, and recently, it has been turned into a garbage dump. In this way, tens of hectares of shoreline bramble willow groves have been destroyed.

In 1974, when I first went to Kalush, people told me with great pride about their complex of chemical plants—the "Khlorvinil" manufacturing firm, which was the largest in all of Europe. And they talked about the countless riches of the Carpathian foothills and the prospect of development

there of the chemical industry. There were plans to double the size of the plant over the next twenty years. Now clouds of smelly chlorine have enveloped Kalush. And all of this is accepted as perfectly normal and even "inevitable."

From Nadvirna to Kalush, an oil pipeline was put down. During testing, a crack appeared at a joint between pipes and tonnes of crude oil spilled into the Luka—the last river with clean water on the north-eastern slopes of the Carpathians.

Still flowing along their old beds are the Lymnytsia, Bystrytsia and Stryi Rivers. But these are no longer the rivers which were created by nature over a period of millions of years, but trenches for the run-off of melted snow and rainwater.

And now we see the results of "fruitful" human activity. Kalush, which was built on about ten little rivers and is only a few dozen kilometers from the Dnister River, is now rationing water. Also rationing water are Lvov and tens of other cities of the Carpathian foothills and adjoining territories. Everybody is familiar with the health resorts of Truskavtsia and Morshyna. And right beside them are ancient oil extracting and processing, and now also machine building, centres: Drohobych, Boryslav, Dasha. Here are also ten lumber plants, which every year destroy thousands of hectares of forests. The Carpathians are growing bald.

At one time, cut down areas were sown. Now they are planted by forestry management graduates, who just throw up their hands—half or more of the planted sets do not take.

At present, waste-free industries are being promoted. So at the Bolezhiv lumber plant, for example, in order to give the impression that this is a waste-free industry, a large part of the wastes are burned. And the wastes from the "Osmoloda" lumber plant are dumped on river shores.

The dug up shores have grown over with nettle and sow-thistle, and in some places are turned into garbage dumps. In fact, it is there that some of the wastes from the "waste-free" "Osmoloda" plant and its analogue, the Broshniv lumber plant, are dumped.

Nature is dying; the living branch which supports us is drying out.

Unfortunately, militarization, too, did not bypass the Carpathians. Military units do what they want in the midst of the forests. One old forester, whom I had occasion to meet, linked the problem of the dying out of the Transcarpathian groves with the militarization of the border zone. According to his observations, the first to die are the groves around the rocket bases. I did not verify whether this was so. I did not have permission to do that. But that they destroy nature, I have no doubt. This is evident even from the radar on Stoy Mountain, near Mukachiv.

It is said correctly that what happens to nature also determines the fate of mankind. The massive dying off of wild animals has had a lot of publicity. Analysis has shown that in the meat of wild boars, deer and other creatures,

even frogs and fish, there are high levels of heavy metals, especially mercury, and the level of arsenic has reached 1.75 - 3.06 mg per kilogram.

Not only wild animals are dying. According to the data of Dr. Dovbash, in the last few years in the Ivano-Frankovsk oblast, there has been observed a very high incidence of illness in children under one year old: over 22 percent of children are ill. One-third of them has rickets and every fifth child has diathesis.

It fell on me to see off on her final journey one of my former students, Olya Boychuk. She was one of those several dozen people who were killed or seriously injured during the accident at the Kalush manufacturing plant. This happened in 1981, during tests. And how many accidents may there be when the equipment gets old? For some reason, no one is thinking about this. Saving money for the bottomless Union budget, they exploit the worn-down equipment until some emergency occurs, and then they look for (and usually do not find!) someone to blame.

If the Kalush "Khlorvinil" is destroying the present generation, the Ivano Frankovsk ZTOS (fine organic synthesis plant) is already destroying the future generation, because the organic carcinogens not only destroy living tissue, they cause major changes in people's genetic structure.

"There is no panacea for all ills," said the wise men of old. In the conditions of the existing social-economic structure, even the wisest ecological projects are doomed to failure. I am firmly convinced that in order to deal with the problem, we must first of all change the form of ownership. Only when the relations between the owners of enterprises and farms and state conservationist inspections become antagonistic can we expect to see positive results. As for the Carpathian forests, all presently-existing lumber plants and forestry farms should immediately be converted to unplanned management. In these conditions, the enormous army of qualified and highly-educated forestry management specialists will be able to preserve our green wealth for future generations.

### **Ukraine Seeks Help To Clean Up Chernobyl Effects**

*AU2211094991 Paris AFP in English  
0723 GMT 22 Nov 91*

[Report by Patrick Kamenka]

[Text] Kiev, Soviet Ukraine, Nov 22 (AFP)—Ukraine, facing huge environmental problems as it emerges from a command economy and the effects of the 1986 Chernobyl nuclear power station disaster, needs help from the West for ecological measures, an official said here.

Deputy Ecology Minister Kostytsky Vasyl told AFP that the independence-minded republic was facing dangers both from pollution in the Black Sea and from the results of Chernobyl.

"There is a real danger for the future of the Black Sea," he said, noting the harm done to the sea by industrial waste.

"We just don't know what will happen in the coming years" if anti-pollution measures are not taken urgently, Vasyl said in an interview.

Western aid was needed "to solve these problems together," he added.

According to official Ukrainian documents, the republic accounts for around a quarter of all the pollution measured in the former Soviet Union, even though it occupies less than three percent of its land area.

The sources are Ukraine's chemical and metallurgical industries, and its mines, particularly the huge Donbass coalfield.

Eastern Ukraine ranks as the single most polluted region in all the Soviet Union, while the west of the republic is the third most polluted.

The Ecology Ministry, set up in June this year and headed by the Green Party politician Yuri Shcherbak, has drawn up several projects, including a clean-up plan for the Dniepr river, and for supplies of drinking water throughout Ukraine.

But Vasyl said that equipment was in poor condition, and international cooperation would be needed to monitor river pollution. It was also essential to bring in new legal instruments to encourage clean-up measures.

However the Ecology Ministry is hampered by its low budget, which comes to only 0.42 percent of the republic's total spending.

Vasyl confirmed the Ukrainian parliament's decision to shut down the Chernobyl power station in 1993, and to refrain from building any new nuclear facilities.

However another government official, laboratory director Vadim Stogniy, pointed out that doing without Chernobyl would pose huge energy problems for the highly-industrialised republic.

That was why the government would have to sharply curtail energy use, and seek deals with regions of the Russian Federation that were rich in oil and gas.

Stogniy also said that Ukraine was sponsoring an international competition to design a protective dome to cover the remains of the disaster-hit Chernobyl reactor.

### **Belarus Seeks Safeguards Against Chernobyl Danger**

PM0212111091 Moscow IZVESTIYA in Russian  
27 Nov 91 Union Edition p 2

["Direct Line" report by Mikhail Shimanskiy: "Chernobyl Still Dangerous"]

[Text] The Belarus Supreme Soviet has adopted a resolution on the 11 October 1991 accident at the Chernobyl Nuclear Power Station.

The resolution notes that the functioning of the power station represents an enormous danger not only to regions of Belarus, the Ukraine, and Russia, but to the entire world community.

In order to adopt prompt measures to protect the population in the event of possible accidents at the nuclear power station the Belarus Council of Ministers was instructed to coordinate with the governments of Russia, the Ukraine, and Lithuania on immediate notification. One very important point in the document is that interrepublic economic agreements should provide for neighboring republics' (states') full ecological and economic responsibility, with compensation for damage to the republic in the event of an accident at a nuclear power station.

### **Georgia Faces 'Critical' Ecological Situation**

92WN0117D Tbilisi SVOBODNAYA GRUZIYA  
in Russian 25 Oct 91 p 3

[Interview with Tengiz Gzirishvili, advisor to the President of Georgia, member of the committee of the International Association on Ecology, Meteorology, and Atmospheric Physics, doctor of physical and mathematical sciences, by Guliko Markozashvili: "We Need an Ecological Fund"]

[Text] In Georgia, as throughout the world, the ecological situation has noticeably become more complex. Tengiz Gzirishvili, advisor to the President of the Republic of Georgia, member of the Committee of the International Association on Ecology, Meteorology, and Atmospheric Physics, doctor of physical and mathematical sciences, answers our correspondent's questions:

[Markozashvili] Respected Tengiz, how would you evaluate the ecological situation in Georgia?

[Gzirishvili] The individual biological and medical aspects of phenomena, related to the pollution of the surrounding environment, have been repeatedly examined in the republic press. I can formulate a brief answer as follows: The situation is critical, and if the ecological situation continues to worsen at the same pace, uncontrollable and irrevocable processes may develop in the biosphere.

[Markozashvili] What has been done in the republic in this area after the victory of nationalist forces, and what are we planning to do?

[Gzirishvili] In the short period of time that has passed since the nationalist forces came to power in Georgia, more than one government initiative, aimed at solving serious ecological problems, has commenced. The state structures for preservation of the surrounding environment in the republic have basically already been formed. Important links, such as the legislative (the corresponding supreme soviet commission) and executive (Ministry for Ecology and the Use of Nature) bodies, have been formed. The basic goal of these structures is to establish and put into effect a new mechanism for preserving nature and rationally using natural resources. We must raise our work to preserve and to utilize nature to an entirely new level. However, numerous obstacles hinder the realization of this goal. Above all, they include the imperfection of the economic mechanism for managing the national economy, the inadequacy of legal and other normative acts in the area of ecology, the still-extant organizational fragmentation in the sphere of preserving and using nature, the

outright or concealed sabotage of government decisions in certain cases, and opposition from various social organizations...

In the struggle against pollution of the surrounding environment from industrial, transport, and other sources, we must not limit ourselves to passive commentaries on the situation that has formed. We must develop a concept for preventing the unfolding of events in an undesirable direction, for which we should use tactics stipulated by their local nature, such as a long-term nationwide strategy.

[Markozashvili] How do we change the alarming ecological situation that has formed in Tbilisi?

[Gzirishvili] Everyone knows that the air is being polluted many times more rapidly than the other parts of the environment, the litho- and hydrosphere. Automotive transport is considered the basic source of pollution of the Tbilisi air basin. While the production of ecologically clean automobiles is being expanded in the world's developed countries and the problem of preserving the surrounding environment there basically reduces to overcoming scientific and technical difficulties, to improving the organizational structure, here in Georgia this problem is defined, above all, by political, social, and economic factors. Thus, scientific research for the purpose of excluding nitric oxide from automobile exhaust ends up being in vain, if the adulteration of gasoline and the shortage of high-quality gasoline and automobile spare parts continue.

We must fulfill the requirements set by the engineers and designers for the roads which vehicles travel. They should have a capacity, such that cars would be able to maintain optimum speed. The high level of atmospheric pollution of Tbilisi with the exhaust of transport vehicles is caused to a certain extent by the low capacity of the city's central streets. We should introduce the practice of one-way movement, which would enable us to raise the rate of movement for transport and to avoid jams at the main intersections and squares during "rush" hour.

[Markozashvili] Respected Tengiz, in all likelihood, serious financial difficulties obstruct the implementation of all this. What ways do you see for extracting additional sources of financing?

[Gzirishvili] For this, we must significantly increase the price of gasoline, introduce a transport tariff, add an ecological payment to the fee for automobile inspection, and run a lottery. Charitable contributions and other financial transactions will enable us to create a Tbilisi National Ecological Fund. We must unite the efforts of ecologists, architects, road engineers, financiers, and representatives of the automobile inspectorate in order to develop projects for the corresponding program.

Let us express the hope that the residents of the capital, pedestrians and drivers alike, will pay attention to the idea of creating an ecological fund...

### Armenia Reopens Controversial Chemicals Plant

PM0811155391 Moscow Central Television First Program Network in Russian 0645 GMT 2 Nov 91

[Report from the "Community Channel" program; figures in brackets denote broadcast time in GMT in hours, minutes, and seconds]

[Text] [065418] [Reporter] As a result of public pressure the environmentally dangerous "Nairit" Scientific Production Association was closed in December 1989 following a major scandal. It used to supply 720 enterprises in the former Union with scarce rubber, all kinds of acids, latex, caustic soda, and carbinol. In 1990 Russia alone failed to receive 23,000 tonnes of products. Armenia lost many millions of rubles too. The Armenian Supreme Soviet passed a resolution this April to reopen "Nairit" and contracts are being concluded with enterprises for 1992. [065449]

### Kazakhstan Uranium Mining, Production Activity Declines

LD0212184391 Moscow TASS in English 1521 GMT 2 Dec 91

[By KAZTAG-TASS correspondent Vladimir Ganzha]

[Text] Alma-Ata December 2 TASS—Kazakhstan is shedding the dubious distinction of being the leading nuclear centre in the Soviet Union. At the beginning of the year, Kazakh public opinion vetoed indefinitely all nuclear activity on the Semipalatinsk range. Now uranium mining enterprises are being shut down. The Shalgi and Tasbulak mines have already closed. The mining of fission materials for the largest uranium plant - on the Caspian island of Mangyshlak - has declined sharply.

The mass emigration of uranium mining town residents to other areas bears witness this is not a temporary phenomenon. Local residents, foremen and engineers alike have all decided to seek work in others sectors of the economy.

### Document Proposes Declaring Kazakh Aral Region Disaster Zone

PM2911143191 Moscow IZVESTIYA in Russian 27 Nov 91 Union Edition p 8

[Correspondent V. Ardayev report: "Aral Sea: Environmental Situation Worsening"]

[Text] Alma-Ata—The DANA-PRESS news agency has issued the text of a proposal by the State Committee for Ecology, the Academy of Sciences, the Ministry of Health of the Kazakh SSR, and the Kazakh State Committee for Hydrometeorology on declaring the territories adjoining the shores of the former Aral Sea an environmental disaster zone.

The proposal has been sent to the republic's Cabinet of Ministers. The document notes that the ecological situation in the region is out of control. The loss of salt and dust from the dried-out bed of the Aral Sea is intensifying. The hazardous pollution with pesticides and salinization of the Syr-Darya River are continuing. The level of ground water has risen, buildings are being destroyed, soil fertility is



declining, and pasture land is being degraded. The genetic stock of the flora and fauna is being lost. The living conditions and health of the population have deteriorated and the level of general and infant mortality has risen.

The authors of the document propose establishing the border of an environmental disaster zone in the Kazakh section of the Aral region. In their opinion, this area should include all the territory of Kzyl-Orda Oblast as well as a number of rayons of Aktyubinsk, Chimkent, and Dzhezkazgan Oblasts. Within the environmental disaster zone it is planned to highlight a zone of catastrophe (Aralskiy and Kazalinskiy Rayons in Kzyl-Orda Oblast and Chelkarskiy Rayon in Aktyubinsk Oblast). Irreversible qualitative changes to the natural environment have occurred here.

According to some sources, the authors of the document are not interested in its publication. There is clearly just one reason for this: the lack of resources to help the people living in the Kazakh part of the Aral Sea region. In all, around 3 million people are now living in dire conditions on the shores of the Aral Sea—in Uzbekistan, Kazakhstan, and Turkmenistan.

**Aral Sea 'Catastrophe' Suffers Continued Neglect**  
*92WN0117A Moscow TRUD in Russian 14 Nov 91 p 7*

[Article by writer Grigoriy Reznichenko: "We Simply Stifled the Aral"]

[Text] That about which scientist Magomed Alklychev told the readers of TRUD on 12 September was, in my opinion, only a good hypothesis. A great deal in nature is mysterious. However, the reasons for the plight of the Aral are nonetheless in plain sight. The overflow of the Caspian Sea may have a different underlying cause: ebbs and flows on a world scale, a shift of the Earth's axis with regard to the Sun, redistributing gravitational forces, which might cause rivers to accelerate their flow... God only knows what might cause the flow of water into the Caspian to increase.

However, the Aral has died exclusively as a result of human activity. Cotton has been planted as a single crop for decades. There are even sayings about it in Uzbekistan: "If you do not plant cotton, they will plant you." Or: "If you do not pick cotton, they will pick you."

The 2.5 million hectares of new land which were developed and put into use in the 20 years from 1965 to 1985 were basically intended precisely for cotton. It is interesting to compare: Before 1965, 4.5 million hectares of fields in Central Asia were irrigated, and 50-54 cubic km of water (about 10-11,000 cubic meters per hectare on the average) were used for this. Later, the arable land was increased to the above-mentioned 2.5 million hectares, but not 30 cubic km of additional river water was required, as one would expect, but 60 cubic km! The addition of each new hectare, it seems, required the addition of double the water, double the application of chemical fertilizers and pesticides.

The predominance of cotton has led to an unprecedentedly high share of cotton cultivation. It has reached 75-80 percent of the crop structure. This is almost absurd. In world practice, cotton cultivation does not exceed 50

percent. The worst distortion of agrotechnical conditions, when cotton is planted after cotton on 75-80 percent of the land over a long period of time, has irrevocably damaged the fields themselves and has exhausted the soil. A Central Asian field that requires irrigation has lost up to 40 percent of its humus. A decline in crop yield has started not only for cotton, but for other agricultural crops as well. The land can be forced to bear only under the influence of doubled, and then even tripled doses of water, chemical fertilizers, and pesticides. Having raped the people, the Bolsheviks undertook to rape the land. What has come of this? Today everyone knows about the Aral ecological catastrophe and the inconceivable mass of ecological disasters throughout the country.

The orientation toward cotton entailed the construction of new supply and drainage canals and of many water reservoirs. They now extend for about 200 thousand km in the region, and almost all of these water arteries are laid on a dirt or sand foundation, without isolating the water. The efficiency coefficient of the irrigation networks is not above 0.54-0.62. The water is flowing into the sand, and not figuratively, forming wild lakes in the deserts and around the former sea. A miser pays twice, so to speak. In this regard, we pay not the same 90 million rubles, as Minvodkhoz assessed the disappearance of the Aral in its day, but more by a factor of 500. A small mistake was made, all because of "let us catch up with and outstrip America." We long ago outstripped it in terms of cotton. Mercilessly exploiting the unwilling, poorly-paid labor of the local peasants, the system attained the production of 8-9 million tons of cotton annually...

Let us ask ourselves a question: Why did we produce so many millions of tons of cotton annually? Is it that we are processing an incalculable amount of fabric? Or are we transferring the raw material to industry, which in exchange is providing the population with a number of other goods that it needs? Or are we exporting the cotton and receiving hard currency, ultra-new equipment, or technology in exchange?...

It is easy for the reader to draw a conclusion. It is obvious: We have simply stifled the sea. Only 400-450 cubic km of water remain in the Aral, yet there were more than 1,000 in the early 1960's. Let me note that the annual flow of the Amu Darya and Syr Darya comprised 114-117 cubic km. Starting with 1971, the amount of water taken from the rivers increased with every year, because the planting of cotton was increased. It reached the point that the Amu Darya ceased to supply the Aral in the mid-1970's, and the sea received about five-eight cubic km a year from the Syr Darya. However, the evaporation of the sea water stayed the same: 36-40 cubic km a year. Now the Aral is disappearing. A crime has been committed. It is a crime, the damage from which can and should be compensated. There is an example of this in world practice. Lake Erie, destroyed in the United States, was restored to its original ecological condition in a period of 10 years. This cost the Americans 42 billion dollars.

Over these years, the level of the Aral dropped 14 meters. The shoreline has receded about 60-80 km. Where waves



only recently splashed, over almost 3 million hectares, a hot, dusty desert, named the Aralkum, has formed. In the remnants of the sea, on its dried-up bottom, billions of tons of poisonous salts, pesticides, and herbicides including DDT, have accumulated, which came here for decades along with the water that drained off the fields into the rivers. The toxic chemicals have poisoned the land around the Aral. Today the wind scatters these toxins for hundreds of km. And everything alive feels the Aral's vengeance for itself.

The most terrible of all calamities, of course, is the suffering of the people. Tashauz and Kyzyl-Orda oblasts, Khorezmskiy Kray, and Kara-Kalpakia, where 3 million people reside, receive a dose of toxins that exceeds all permissible norms by a factor of 10. This is genocide: No other term comes to mind. The Amu Darya is fed not only by the water of the Pamir glaciers. Up to 15 cubic km drains into the river from the fields of Bukhara and Kashka Darya oblasts, the same water that passed through the thousands of hectares of fields and is saturated with the same toxins with which the land is stimulated and compelled to bear. The same happens in the upper reaches of the Syr Darya. Flowing downward, this water once again flows into fields, already larded with chemicals. The melons, watermelons, grapes, and vegetables, having taken in the poisons, transfer them to people. Few cattle remain here, but even they, eating poisoned fodder, pass on the contamination to people.

Or the drinking water. In Muynak, for instance, as well as almost everywhere in the Aral area, river water is collected

in a basin, sprinkled with chlorine, which is called purification, and supplied to the city for drinking, preparing food, and baking bread. Yet another example: On the outskirts of Muynak part of the area is surrounded by dikes, which are filled with the poisoned water. Fish are raised in these basins. The fish are also contaminated. Do you refuse to eat fish, grapes, and tomatoes? Then you may as well give up and die.

The people have no way out. They are doomed to die. Medical research and statistics show: There is no higher rate of infant mortality in the Union, than in the Aral area: 76 of every 1,000. There are many rayons where death strikes 98, or even 118 newborns in every 1,000. In Aralsk, Muynak, and a dozen other settlements infants are rejecting their mother's milk, because it contains more salts by a factor of three-four, than the milk of mothers who live, for instance, in Alma-Ata. Last in this tragic list: 69 of every 100 adults are incurably ill.

This is the result, these are the far from complete consequences of the degradation of the natural Aral environment. The destruction of the Aral Sea, as is increasingly obvious, is the first and biggest such man-made ecological disaster in the world.

People have a right to ask: What has been done, for instance, in the last 10 years, to stop the destruction of the sea and of the nature which surrounds it, to help the people survive? To answer this question seriously: virtually nothing. The people of the Aral, cheated by fate, have been cast aside, abandoned by everyone, by the authorities both past and present. There is no one to deal with human grief.

## REGIONAL AFFAIRS

### EC Fund To Finance European Environmental Policy

91AN0557A Groot-Bijgaarden DE STANDAARD  
in Dutch 13 Sep 91 p 17

[Article by Marie-Anne Wilssens: "European Parliament: LIFE Cash Fund To Become EC's Fourth Structural Fund"]

[Text] Strasbourg—The European Parliament (EP) seeks to establish a fourth major structural EC fund, in addition to the social, regional, and agricultural guidance and guarantee funds. This fund should be used for the financing of a real European environmental policy.

The EP therefore wants to upgrade the "LIFE" financial instrument—actually a small war chest for the environment which the Commission submitted to the EP for discussion—to become a fund with its own lines of credit. Hemmo Muntingh (Socialist MP for the Netherlands), reporter for the EP's environmental committee, expects the LIFE structural fund to be established in 1993, after the revision of the EC treaties.

"Indeed, as long as the Council of Ministers must decide unanimously about environmental matters, there is little chance of the fund being approved. The southern countries are in favor of the fund, because they need the cash; the northern countries are reluctant, because they are the ones that have to bleed," says Muntingh. The Dutch EP member takes things very calmly, because he is aware that patience is essential for anyone who wants to get the European environmental policy going.

In the early eighties, he had already attempted to set up a European environmental fund, but in vain. This attempt did, however, result in a few credit lines for specific aspects of environmental protection. Indirectly, approximately 800 million European currency units [ECU] a year have been appropriated to environmental policy. Still, the money available for the environment is not commensurate with the size of the problem. In the meantime, however, public opinion shifted and even the Group of Seven and the European Council are now emphasizing the importance of environmental problems.

#### Blackmail

"So the time was riper," says Muntingh. The new request for establishing an environmental fund was welcomed a little more favorably by the Commission. As a result, ECU30 million was allocated to it in the budget. But there was no legal framework regulating the actual expenditure of the money. The Commission was rather hesitant.

Eventually, it gave in to the EP's blackmail. The members of the European Parliament denied the Commission funds that it had requested for additional staff members, unless it produced a directive regulating the establishment of the LIFE fund. The draft order was then reluctantly drawn up by the Commission, "but it was a rush job and this was clearly reflected in the text," says Muntingh. It had to be seriously adapted by the EP.

Funds for the LIFE program are currently being taken from the EC budget. But the EP thinks that the huge needs can only be financed through a real "fund," with its own financing resources, for instance a portion of the environmental taxes (e.g., energy levies or a tax on the emission of CO<sub>2</sub>). However, this will be not possible until the EC treaties have been changed. As soon as this is done, LIFE should become a real structural fund with a strong financial basis. In order to give it sufficient scope, the fund should have at least ECU2 to 3 billion a year at its disposal.

The EP also made the Commission's proposal easier on "countries which have a lot of nature but are short of cash." What we need is European solidarity. "For cleaning up the environment in East Germany, between ECU100 and 150 billion will be required over the next 10 years. This is too much for one country to bear."

In order to maintain a network of bird sanctuaries visited by migratory birds (within the framework of the so-called habitat directive), ECU500 million a year are required.

For the implementation of the directive related to the purification of the urban waste waters (a sore point for Belgium), several billion is required, which Southern European countries do not have. In the past, Belgium, the Netherlands, and West Germany dumped tons of dangerous waste in East Germany. A great deal of money will be required to repair this damage.

The EP also made it possible for industry to appeal to the LIFE fund for financial contributions in order to solve problems in certain branches of industry. "Tons of jarosite waste from the zinc-processing industry are lying on both sides of the Belgian-Dutch border. In the Netherlands, a company was ordered by the authorities to remove that waste; this is going to cost 400 million guilders. The company is willing to pay half that amount. But on the Belgian side of the border, the waste heaps are left undisturbed. This is even tantamount to unfair competition."

In such cases, the LIFE fund could offer a fair solution by helping to clean up a whole branch of industry across national borders. Under the proposal, private companies could have up to 30 percent of their expenses financed by the Community.

With ECU30 million allocated for this year and ECU60 million for next year, the LIFE instrument can hardly do anything. A well-filled nest egg is what is required.

In addition to the "internal" environmental fund, an "external" LIFE fund must also be set up. The latter would finance initiatives taken by the EC within the framework of its international environmental obligations or in order to contribute to the financing of environmental projects in the Third World.

The Commission will probably adopt the amendments made by the EP and submit a proposal to that effect to the Council of Ministers, which is however divided about the subject.

Muntingh is nevertheless convinced that the European environmental fund will eventually be a fact. In its plans

for the new European treaty, the Dutch presidency assumes that a qualified majority will suffice for decisions on environmental questions. Only then can the resistance of certain member countries be overcome. Muntingh thinks that the environmental fund can be established alongside the EC's other three structural funds at the beginning of 1993.

## EC To Limit Carbon Dioxide Emissions

### Commission Proposals

92WS0082B Brussels EUROPE in English 26 Sep 91 p 7

[Article: "(EU) EC/Energy/Environment: The Commission Approves Its Communication To the Council On a Community Strategy (Comprising the Tax on Energy) To Limit CO<sub>2</sub> Emissions"]

[Text] Brussels, 25/09/1991 (AGENCE EUROPE)—"I regret it for pressure groups who had circulated the rumour that the Commission had postponed its decision, but on Wednesday the Commission proved it could assume its responsibilities, even when the decisions were difficult." This is how Mr. Ripa di Meana, European Commissioner for the Environment, announced that the Commission had unanimously adopted its communication to the Council "on a Community strategy to limit CO<sub>2</sub> emissions and improve energy efficiency". And he added that this strategy included a tax on CO<sub>2</sub> emissions.

The Commission noted that the greenhouse effect was continuing to get worse and that CO<sub>2</sub> emissions were increasing. It is essential to act in order to respect the objective set by the Community consisting in stabilising the emissions at the 1990 level until the year 2000 and then reducing them. Clearly, the tax is not the only element of the strategy, which includes in the first place an increase in energy efficiency through technological progress, isolation standards, consumer standards and also—Mr. Ripa di Meana stressed—speed limits on cars: the Commission accepted the principle, even if its application will be the object of a specific proposal. The tax will come within this context, studies having proved that the fiscal instrument was the most effective, the least costly and the fairest and that it had a "pedagogical" element as a signal to industrialists and consumers.

Mr. Ripa di Meana stressed the following elements:

- it is now up to the Council. The Commission is not yet putting forward operational proposals but its communication is more than a document for thought: it has made its choice. The Council's presidency has envisaged convening on 10 December a joint Environment/Energy Council, without excluding the participation of the Ministers of Economy and Finance;
- the Commission will have close consultations with other industrialized countries. Japan, Sweden and Switzerland have already shown interest in the proposed formula; the position of the United States is totally reserved, but Mr. Ripa di Meana hopes that his proposals will unblock the situation;
- the proposed tax will be \$10 a barrel by the year 2000. It will [as published] start at \$3 barrel in 1993 and increase by \$1 a year;
- the tax will be calculated at 50% in relation to energy power and 50% in relation to carbon content. It will thus be substantially higher for coal, less for gas, etc.;
- the tax will have a minimum effect on growth and inflation, effect largely compensated by its advantages;
- the Commission has taken into account the competitiveness of European industry, retaining the principle of fiscal neutrality and providing for exoneration in six sectors: steel, chemicals, non-ferrous metals (aluminium), cement, glass, paper pulp and paper.

### Industry Criticizes Plans

92WS0082C Brussels EUROPE in English  
25 Sep 91 pp 13-14

[Article: "(EU) EC/Environment: Several European Industrial Organisations Express Opposition To Plans for an EEC Tax To Reduce CO<sub>2</sub> Emissions"]

[Text] Brussels, 24/09/1991 (AGENCE EUROPE)—The European Chemical Industry Council (CEFIC), the Association of European Automobile Manufacturers (ACEA), the European Association of Metals (EUROMETAUX), the European Cement Association (CEMBUREAU), the European Petroleum Industry Association (EUROPIA) and the European Federation of Industrial Energy Consumers (IFIEC-Europe) have reaffirmed their conviction that a unilateral Community-wide tax on energy/CO<sub>2</sub> emissions would cause severe economic damage without any certainty of achieving the desired environmental objective. These associations believe that the European Commission should instead press for concerted international action covering all countries and not only the industrial countries of the EC. In their view, unilateral action by the EC could produce the opposite effect: higher energy/CO<sub>2</sub> taxes could force efficient, energy-intensive industries in the EC to close down, leaving a gap in supply and generating unsatisfied demand which would prompt sometimes less efficient, energy-intensive industries outside the EC to raise production to meet this demand.

All studies show that the EC contributes some 13% to global man-made emissions of CO<sub>2</sub>, while much higher amounts come from the United States and central and eastern Europe. In their recent statements, CEFIC and CEMBUREAU have called on the Commission and the EC Member States to focus on the reduction of greenhouse gases in eastern and central Europe.

The CEFIC also insisted upon the need to develop plans of action in order to reduce energy consumption through voluntary measures and technological progress. The European Cement Association (CEMBUREAU) had pointed out the improvements already made with a view to reducing CO<sub>2</sub> emissions in cement plants through the use of secondary raw material. The other associations cited also spoke in favour of seeking the least costly measures for

every tonne less of CO<sub>2</sub> or in favour of voluntary agreements and encouragement for energy saving which would, in their opinion, be more beneficial both for the economy and the environment. In particular, the petroleum industry considers that the alternatives to taxes on CO<sub>2</sub> and on energy in general have not yet been sufficiently explored.

### **Pollution Threats to Barents Sea Detailed**

92WN0100A Oslo ARBEIDERBLADET in Norwegian  
26 Oct 91 pp 22-23

[Article by Per Havikbotn and Rolf Jakobsen: "The Barents Sea: From Larder to Garbage Dump"]

[Text] The illusion of an unsullied Barents Sea has been punctured. On the surface, the sea is just as wild and untamed as when Barents arrived at Novaya Zemlya in 1594, hunting for an eastbound shipping route between Europe and East Asia. But hidden in the deep—in one of the world's most important larders—there lurk both nuclear waste and industrial and military refuse, heavy metals, and chlorine organic compounds.

The Norwegian Polar Institute recently made public a map of the Barents Sea, where pollution sources are plotted in. The map was developed by researchers at the Marine Biology Institute in Murmansk, the Institute for Oceanography in Poland, and the Polar Institute. It gives a frightening picture of the sea's state of health.

### **No Black Painting**

"Yes, there are good grounds to sound a warning. For too long, the Barents Sea has been looked upon as 'untouched'. The environmental map is far from complete. Now, when Soviet researchers have freer reign, we are constantly receiving new information that makes the picture even more gloomy," said biologist Rasmus Hansson of the Polar Institute.

The biologist is somewhat cautious and warns against painting too black a picture. "When we maintain that the Barents Sea is polluted, we must have the proportions clearly before us. The pollution is far from being as bad as in the North Sea, the Mediterranean, or other ocean areas surrounded by heavily populated coasts."

### **Radioactive Dumping**

Most worrisome right now is information about the dumping of radioactive waste by the Soviets in both the Barents Sea and the Kara Sea—the ocean area east of Novaya Zemlya. Why did we not learn anything about this before?

"This is an interesting question. I assume that there is much relevant information in Norwegian military archives. We are now appealing to our military authorities to release this type of information. Also, we researchers have probably not been asking the right questions," Hansson said.

"The rumors have been circulating for a long time and we have an ugly suspicion that the Norwegian armed forces have known for a long time about the dumping of nuclear waste by the Soviet nuclear icebreaker fleet. But the

information has been too distasteful for the Norwegian authorities," said Veronica Bjong of Greenpeace.

### **Heard Rumors**

How long has Environment Minister Thorbjorn Berntsen been aware of the dumping of radioactive waste? "We have had indications for a good time, but right up until recently the Soviet authorities have denied that dumping has taken place. And even if we have been aware of the rumors, it has been difficult to take inventory of radioactive contamination. Now it is urgent to get the extent of the dumping charted. Indeed, we do not know how long the drums containing the waste will hold tight."

### **Uncertain Future**

ARBEIDERBLADET asked Director Knut Gussgard of the National Nuclear Inspectorate whether there are radioactive fish, dangerous to the health, swimming around in the Barents Sea.

"No. Not today. Measurements show that the fish contain less than 10 becquerel per kilo. This is a very small measure and can just as well be ascribed to the nuclear test explosions of the 1950's and 1960's. But the dumping of solid nuclear waste in the Kara Sea east of Novaya Zemlya can result in increased values in the future."

Does this mean that the future is dark for the fishery in Finnmark? "I do not believe that the radioactivity is so high that it represents any danger to people's health, but the markets that purchase the fish might react."

### **Vulnerable Sea**

The Barents Sea is also threatened from another direction. Researchers have found a disturbing concentration of environmental poisons, such as heavy metals, PCB's and other chlorine organic compounds. This is disturbing because the Barents Sea is more vulnerable than ocean areas at lower latitudes.

"The bottom is shallow and the water is cold in the sea off Finnmark. The processes take place slowly. Environmental poisons break down more slowly and therefore accumulate in the food chain. Besides, the pollution that ends up in the Barents Sea stays there," said Rasmus Hansson of the Polar Institute.

### **Long Transport**

The environmental poisons are transported from far away. Either by the Gulf Stream's eastward current that moves along the coast of Finnmark or via the large Russian rivers—the Dvina, the Ob, the Yenisey, and the Lena. The rivers pass by large industrial areas on their journey toward the sea.

"Indeed, we are worried about the accumulation of environmental poisons in the food chain," said section leader Lars Otto Reiersen of the National Pollution Inspectorate (SFT). He adds that the Barents Sea is also subjected in part to heavy air pollution. Both locally, from Kola, from the Soviet Union, the United States, and Canada, and from industrial areas in Central Europe.

**"Plowed" Sea Bottom**

The Soviet researchers at the Marine Biology Institute in Murmansk maintain that large parts of the Barents Sea bottom are damaged from bottom trawls and plowing the bottom for shellfish. There has been little discussion of such damage in Norway. According to Reiersen, there is much experience from the North Sea to build upon with regard to damages from bottom trawls.

"The experiences from here show that small creatures with a short reproduction cycle manage well, while larger animals disappear," Reiersen said.

Rasmus Hansson characterizes the dragging for scallops around Jan Mayen and in the Barents Sea as insane Norwegian resource policy. "The shellfish draggers plowed up large parts of the sea bottom before most of them went bankrupt or were restructured."

**New Threats**

The oil industry will in the future represent the greatest threat to the Barents Sea. "Today, oil spills are small. But we will have larger spills as a direct consequence of increased oil operations. We know that more oil is spilled in daily operations than in accidents. As long as oil technology remains at today's level, oil operations in the area are risky. Oil that drifts northward will encounter the ice edge and do irreparable damage," said Hansson, getting support from Reiersen of the SFT.

"In the SFT we have no problem with saying that oil protection preparations are poor in ice-filled waters. The equipment is not good enough."

Bente Aasjord thinks that it was completely indefensible to give an approval of oil operations in the Barents Sea: "We know that even the world's best oil protection equipment does not work in waves over three meters and has little effect in darkness and in ice. In the Nature Conservation Association we say a clear no to oil operations in the Barents Sea, because the consequences with an accident are too great. After all, the Barents Sea is one of the world's most important and most productive ocean areas."

**Under the Magnifying Glass**

Both Soviet, Russian, and Norwegian environmental authorities want, literally, to get to the bottom in the question of nuclear waste in the Barents Sea and the Kara Sea. "Up until now, we have been working against a vacuum of responsibility. At the moment, there is nobody on the Soviet or Russian side who dares to take the responsibility," said Director Gussgard of the National Nuclear Inspectorate. He is a member of the Norwegian expert group that is to work out a plan for the mapping of nuclear waste. "But there is nothing wrong with the will to cooperate on the Russian side," said Gussgard.

The Nordic countries will in the near future present a proposal to the International Atomic Energy Agency—the IAEA—regarding a global monitoring and sanction authority for nuclear installations.

The environmental cooperation between Norway and the Soviet Union/Russia is beginning to take solid forms. In

addition to the work in the Norwegian-Soviet environmental commission where, among other things, an oil protection agreement has been concluded, Norway has gotten coordination responsibility in the so-called Rovaniemi Process, a cooperative effort on nature conservation in the Arctic.

**Nuclear Waste Stored Here****Great Danger of Nuclear Reaction**

There is a great danger of an uncontrolled nuclear reaction on board the Soviet vessels that are used for storage of nuclear waste in Murmansk. The Labor Party Press Association [A-pressen] has obtained confirmation of this from the readiness department of the provincial governor's office in Finnmark.

Norwegian authorities have received confirmation that civilian nuclear waste is being stored on ships and on board barges in the harbor at Murmansk. This is nuclear power waste from the nuclear icebreakers and other ships in the fleet of the Murmansk Shipping Company. The nuclear waste consists of the ships' propulsion reactors, which stay on board the vessels for three years for cooling down.

"Each vessel stores several reactors, but we are unsure how many. Each icebreaker can have two propulsion reactors, each of which contains 150.7 kilos of highly enriched uranium 235," advised Civil Defense inspector Torbjorn Naess. There were three tonnes of uranium in the reactor at Chernobyl. Four percent escaped.

**Catastrophe?**

During the three years the reactors are kept for cooling down, the reactors are controlled with the help of control levers.

"If one of these ships, for example, is run into, the levers can come out of position so that a nuclear reaction is set in motion. Then we have what is called a China Syndrome," Naess told A-pressen. An uncontrolled reaction in one reactor can spread to the other reactors that are stored in the vicinity.

The official Norwegian position is that there should be absolutely no danger connected with the storage of nuclear waste. The storage in the harbor at Murmansk is viewed by Norwegian authorities as totally unacceptable. On a scale from zero to ten, Naess placed the risk of an accident at five. "The risk that is connected with the storage in Murmansk is definitely high," said Naess.

**No Evacuation**

Despite the fact that Naess fears an uncontrolled nuclear reaction in Murmansk harbor, he ruled out that an accident will lead to evacuation of the population in Finnmark.

"The quantities of uranium are so small that it cannot create even theoretical possibilities that the population in Finnmark will have to be evacuated. On the other hand, we believe that the long-term effects can threaten life and health in Norway," said Naess.

**Report on Nuclear Power Plant Safety in Central, Eastern Europe Issued**

*AU2511152691 Hamburg DER SPIEGEL in German  
25 Nov 91 pp 22-23*

[Unattributed report: "Information That Makes One's Flesh Creep"]

[Text] The Soviet reactor physicists knew the danger. They had known for a long time: In a specific situation a nuclear reactor of the Chernobyl type escalates within seconds and is destroyed by the fast power output—as happened in block four of Chernobyl in April 1986.

At that time, however, the operating crews were unsuspecting and ignorant, they were deliberately left in ignorance. They calmly went about their business and hardly had a chance to realize the danger and prevent the maximum credible accident after all.

FRG Environment Minister Klaus Toepfer reveals the different levels of knowledge of the chiefs and the crews in a "report on the safety of nuclear power plants and environmental issues of energy supply in the states of Central and Eastern Europe" for the Bundestag Environment Committee. The 50-page document provides information that makes one's flesh creep.

Example: The Soviet nuclear power industry operated and is still operating its risky reactors as if they were built for eternity. Toepfer's safety expert, Adolf Birkhofer, was completely taken aback when he heard the following in the Ukraine: There is no "technical program for the shutdown" of the Chernobyl-type reactors. Nobody can say where the 50 tonnes of steam per hour that are required on a long-term basis for the "shutdown" are supposed to come from.

Toepfer and his team have now involuntarily become experts on Russian reactor safety. As a result of German unity, the people from Bonn became responsible for the nuclear power plants in Greifswald and Stendal. Since the examination and shutdown of the nuclear reactors there, which were built by the Soviets, even German nuclear cowboys have become increasingly worried about the 58 Soviet reactors in the former East Bloc.

Meanwhile, Birkhofer stated that 16 of the power plants "have major safety deficiencies," 24 newer plants "still" have "clear safety deficiencies," and the remaining 18, the most modern ones, "still have safety deficiencies." According to the assessment in Toepfer's report, Western safety standards cannot be achieved "at appropriate cost."

The number and seriousness of the defects criticized in all types send a shudder down one's spine. The weaknesses of the system are aggravated by deviations from the prescribed standards, which are low in any case; in addition, there is insufficient maintenance and there are "shortcomings in the organization, qualification, and motivation of the staff." The retrofit that was decided on years ago has never been implemented.

The future appears even bleaker. Inflation and balance of payments problems reduce the scope for investment, while

the breakdown of ailing coal or oil power plants is increasing the pressure for the continued operation of the reactor bombs. The central reactor safety authorities of the former Soviet Union have lost their function, while new control authorities have not yet been established in the republics.

According to Toepfer's summary, under German law these dangerous nuclear reactors would have to be switched off immediately. Looking at the energy balance of the former East Bloc, this would even be theoretically possible. If coal, oil, and gas were as efficiently used in the East as in the West, the power plants there would be as efficient as here and there would not be such enormous losses in the power-distribution network.

However, this is all mere theory. Toepfer is trying to woo the industrial states into a joint relief action. Objective: to improve the energy systems, to build new gas power stations, and at least to gain scope for the early shutdown of the most dangerous reactors.

At the same time, the nuclear reactors that continue in the meantime to produce power are planned to be made safe with Western technology for a certain period—despite the finding that an acceptable security standard cannot be reached.

This is a double-edged problem for Toepfer. If there is a catastrophe, he will be liable, even if he affirms again and again that technical help does not mean approval of continued operation.

Moreover, a great deal of money is needed for his strategy. The safety retrofit alone swallows up at least DM200 million per block. With 33 reactors, some of which have several blocs, this quickly amounts to billions, not counting the equally high expenses for the optimization of the non-nuclear energy sources. The FRG cannot finance this alone; this is supposed to be done at an international level.

The French, the British, the other Europeans, the Japanese, and the Americans readily distribute resolutions, but money has not been promised so far.

The reason for their reserve was no secret for Toepfer: The others are relying on the Germans' fear of nuclear power, they are taking their time, and hoping that the voters' fear will force Bonn to make advance concessions.

## ITALY

### Country at Forefront of EC Plastics Recycling

*92WN0055B Rome L'ESPRESSO in Italian  
20 Oct 91 p 213*

[Article by Carlo Gallucci: "Almost on Par With the Swiss"]

[Text] Environment—Among European countries, Italy is at the head in one category: with the exception of Switzerland, it is the most active in reutilizing plastics. And we just might reach first place.

Among EC countries, Italy is the most active in recycling plastics. In Europe, only Switzerland is ahead of us, but not by much. We reuse 12.5 percent of the 4 million tons we use every year. According to research undertaken by the European Association of Plastic Producers, the Swiss reuse 13.1 percent.

Even if a few years late, one can begin to see the effects of the law that in 1988 instituted the mandatory recycling of all plastic liquid containers. In reality, according to those norms, by this year at least 40 percent of the containers should have been recycled: that is to say, an amount just below 100,000 tons. Instead, at this pace only 4,000 tons of PET, PVC and polyethylene shall have been claimed for reuse, or less than 2 percent. Moreover, REPLASTIC, the consortium instituted by the courts, has been operational for only nine months, burdened by considerable delays in scheduling as originally called for by the edict.

The consortium, presided over by Sergio Castriota, is financed by mandatory contributions disbursed by all the companies that produce or import containers, either empty or full. For this year, revenues totalling 27 billion lire are foreseen. With these funds the consortium must finance information campaigns directed at users (approximately 4 billion lire spent in 1991) as well as financing the actual recycling process itself. In reality, REPLASTIC collects plastic waste from municipal collection points and then turns it over to melters who can then either separate it by type and send it to be reprocessed, or simply use it directly. The system breaks down, however, if the municipal authorities do not collect the plastics separately.

According to the law, all those involved in the process should have already accomplished their tasks by January of last year, however, up to now, among the larger cities this service is guaranteed only in Parma, Padova, Brescia and Verona. About 50 percent of the materials collected by the municipal bodies is then sent to one of the facilities where it will be transformed into manufactured goods: park benches, bricks for exteriors, and for containers used for the collection of more plastics. With this end in mind, in the past years four companies have been founded: RPE in Parma, TECOPLAST in Ferrara, REC/PLAST in Prato, and COGES in Brescia.

The other half of the plastic gathered by the municipalities, on the other hand, is sent to one of those youth-run cooperatives which sort the three different kinds of materials. This operation is very costly (about 300,000 lire per ton), but it has the advantage of allowing for the complete regeneration of the product, as if it were using brand new, original material.

#### Changes in National Energy Plan Viewed

92WN0124A Rome L'ESPRESSO in Italian 17 Nov 91  
pp 215-216

[Article by Enrico Fontana: "Megawatts Galore"]

[Text] According to ENEL [National Electric Power Board], the National Energy Plan [PEN] is inadequate. New power generating plants are needed. What type and where they are to be built are discussed herein.

The bugbear of blackouts is no longer the source of nightmares for Franco Viezzoli, the president of ENEL. Our country, it would seem, has no immediate worry in this regard, at least not before 1995. Imports of power from abroad will enable us to resolve the coming winter's foreseeable difficulties. And a few pauses for reflection, in our approach to improving the environment around power generating plants, will suffice to also overcome the unfavorable juncture being projected for 1992-1993.

But to keep pace with the other industrialized countries, the projections embodied in the current PEN will have to be revised. The projected consumption ceiling of 315 billion kilowatt-hours [kWh] of electricity for the year 2000 is too low. Italy will need at least 20 billion kWh more than this, and, to provide them, ENEL will need new power plants capable of generating at least 3,000 megawatts [mW].

Viezzoli has made this unexpected upping of projections a matter of record, in no uncertain terms, in the most recent "ENEL Programs Update" approved by ENEL's board of directors on 24 October and forwarded to the minister of industry, Christian Democrat Guido Bodrato. The choice of new plants, including the "repowering" [increasing the power-generating capacity] of some existing ones, must be undertaken immediately.

ENEL is already working on detailed proposals (see map [not reproduced here]): 400 mW of repowering for the Piombino plant and 800 mW for the Porto Tolle plant; two 300-mW plants to be built alongside the old, now-closed, Caorso and Trino Vercellese plants; and four 300-mW plants to be built in Campania.

With these additional 3,000 mW installed, according to ENEL, Italy will be able to absorb a 3.7-percent annual growth rate of electric power consumption, or approximately 1 percentage point more than under the old PEN.

The projected rise in consumption is based on a projected gradual rise in economic recovery. The projections on which the old PEN were based, on the other hand, would relegate Italy to a decade of recession. "A 2.1-percent growth of GDP, as projected under the old PEN," says ENEL, "would be far below our potential and would exacerbate the problems of employment and of the imbalances that still exist in our country."

Thrust in the direction of an economic upsurge—therefore of higher power consumption growth rates—will be imparted by the opportunities the start-up of the single European market will offer in 1993, and by those arising from the opening-up of the East European countries.

The ENEL president's optimism, however, is hedged by some specific provisos. To begin with, economic ones: Between new power plants and repowering of existing ones, Viezzoli seeks to invest something like 62 trillion lire over the next five years. On the other hand, however, he is asking the government to "maintain the current ENEL funding structure and to immediately raise the current consumer rates and the heating surcharge."

Specific provisos are also attached with respect to energy sources: As of the year 2000, ENEL must be burning at least 20 million tons of coal, and the use of methane to produce electrical energy must not exceed 20 billion cubic meters, annually. Modifications designed to improve the antipollution characteristics of existing operative installations, and expected to cost 9.5 trillion lire over the next five years, can be undertaken provided they do not entail interruptions in the continuity of service, and provided they are supported by "clearly defined and unambiguous" standards regarding pollution.

The latter note is a controversial one that certainly cannot have gone unperceived by the minister of environment, Socialist Giorgio Ruffolo, whom Franco Viezzoli has not been overly secretively accusing of "legislative confusion."

Nor, for that matter, is the document that was approved by ENEL's board of directors lacking in other passages distasteful to the environment minister's liking, such as the one calling for a "substantial nuclear energy contribution," terming it necessary so as to reduce carbon dioxide emissions.

But what the minister of environment has found especially difficult to digest has been Viezzoli's decision to transmit the document to Bodrato without even having consulted the minister. Ruffolo's angry outburst turned into a bitterly worded letter addressed to Viezzoli a few days ago.

ENEL's new programs, the letter points out in substance, must have the minister's approval prior to being discussed and approved by the CIPE [Interministerial Committee for Economic Planning]. This may seem a mere bureaucratic mix-up, but in fact it is a little more complicated than that.

Ruffolo can very seriously jeopardize the realization of ENEL's plant building and repowering plans. In fact, his Ministry has the last word as to the environmental compatibility of the proposed installations. Without his Ministry's approval, not even the first stone can be laid.

The list of those to be approved is long, amounting to 11 plants in all, for a total of over 4,000 megawatts. In a word, ENEL's ambitious plans risk ending up at a dead halt in some room of the Ministry of Environment.

## UNITED KINGDOM

### Industry Leaders Call for Tougher Environment Policies

92WN0120A London *THE DAILY TELEGRAPH*  
in English 3 Nov 91 p 5

[Article by Greg Neale: "Bosses Urge Tax Penalty for Polluters"]

[Excerpt] Industry leaders are calling on the Government to toughen its policies on a wide range of green issues, including taxation, energy saving, transport and recycling.

Among their recommendations are higher petrol taxes and charges for dumping rubbish in landfill sites, comprehensive energy rating systems for houses, factories and offices, and changes in company car tax.

Without changes, they say, it will be impossible to meet Government targets on cutting emissions of the industrial "greenhouse" gases that cause global warming.

The calls come in the first report of the Advisory Committee on Business and the Environment, set up in May.

Headed by Mr. John Collins, the chief executive of Shell UK, the committee includes executives from ICI, IBM, National Power, British Gas, Rover and National Westminster Bank.

Their report was welcomed yesterday by Mr. Heseltine, Environment Secretary, and Mr. Lilley, Trade and Industry Secretary, and is likely to put pressure on Mr. Lamont, Chancellor, to incorporate some of its recommendations in his next Budget.

Mr. Andrew Warren, director of the Association for the Conservation of Energy described the report yesterday as "political dynamite" in its implicit criticism of present energy policy.

In their report, the industrialists call for:

- Petrol tax to be increased to encourage diesel engines and smaller, more efficient, cars.
- Tax on company cars to be adjusted to encourage the use of smaller vehicles.
- Vehicle excise tax to be graded according to engine size.
- A target for national energy efficiency improvements up to the year 2005.
- The Energy Efficiency office to be strengthened, with a "more active and urgent work programme."
- VAT to be lowered on energy-saving products, with minimum energy efficiency standards for domestic and commercial appliances.
- Voluntary energy savings targets to be set for industry in iron and steel, chemicals, minerals and food, drinks and tobacco.

On the issue of recycling, the report warns: "We are in danger of seeing our European competitors continue to forge ahead in the business opportunities that recycling, and the use of recycled products can offer." It calls for:

- The price of landfill dumping of waste to be increased "significantly."
- A ban on landfill dumping of waste with a significant metal content.
- An investigation of a national "waste exchange" for recycling.
- Labelling schemes to identify raw material content and recyclability.



—Newspapers to contain a mandatory minimum amount of recycled paper.

Newspaper publishers and newsprint producers have already agreed to a target of 40 percent recycled paper content by the end of the decade (THE SUNDAY TELEGRAPH uses about 30 percent of recycled paper in its production). [passage omitted]

### **Environment Ministry Launches Energy Efficiency Campaign**

92WN0119A London THE DAILY TELEGRAPH  
in English 5 Nov 91 p 15

[Article by Toby Moore: "£10m Drive To Bring Home Global Warming Danger"]

[Text] A £10 million publicity campaign to help to counter global warming by persuading people to save energy was launched by the Government yesterday, writes Toby Moore, Environment Correspondent.

The three-year campaign, Helping The Earth Begins at Home, announced jointly by Mr. Heseltine, Environment Secretary, and Mr. Wakeham, Energy Secretary, is designed to bring the problems of climate change into the nation's living rooms.

Domestic energy use is responsible for about one-quarter of the carbon dioxide, the main greenhouse gas, which is sent into the atmosphere from Britain.

The campaign will use television commercials, newspaper advertisements and leaflets to point out that the average home is responsible for sending about 7.5 tonnes of carbon dioxide into the atmosphere from gas, coal and oil each year. Insulation, lagging and efficient boilers could reduce this by half and also cut fuel bills.

The campaign is part of the Government's persuasive, rather than coercive, strategy to meet commitments on reducing carbon emissions. Britain has set a provisional target of stabilising emissions of carbon dioxide at 1990 levels by 2005.

"We must act on the domestic front if we are to achieve our target," said Mr. Heseltine. "This is a reduction we must achieve for the health of our planet."

Mr. Wakeham added: "The very special advantage of energy efficiency measures is that they all save money, as well as helping the environment, and they can all pay for themselves."

A plea for a petrol price of £6 a gallon, and a halt to new road building, was made yesterday in the Green party policy document, Road to the Future.

The party also proposes new planning laws to reverse a trend towards the centralisation of hospitals, post offices and other services and a ban on out-of-town shopping centres and leisure developments.

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